```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OM nucleic -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     April 2, 2003, 23:22:25; Search time 2898 Seconds (without alignments) 10373.774 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                          GenEmbl:*
1: gb_ba:*
2: gb_htg:
3: gb_in:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2054640 seqs, 14551402878 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-027-450-46
1033
                                                                                                                                                                                                                                                                               GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                    gb_ba:
gb_intg:
gb_on::*
gb_on::*
gb_ov::*
gb_pat::*
gb_pt::*

                              em_un:*
em_vi:*
em_tg_inv:*
em_htg_inv:*
em_htg_inv:*
em_htg_us:*
em_htg_pin:*
em_htg_rod:*
em_htg_rod:*
em_htg_rod:*
em_htg_rod:*
em_htg_rod:*
em_htg_rod:*
                                                                                                                                                                                   em_in: *
em_mu: *
em_om: *
em_or: *
em_ov: *
em_pat: *
em_ph: *
                                                                                                                                                                                                                                                                                                                         gb_ro:*
gb_sts:*
gb_sy:*
gb_un:*
em_htgo_other:*
           em_htgo_hum:*
em_htgo_mus:*
                                                                                                                                                            em_sts:*
                                                                                                                                                                         em_ro:*
                                                                                                                                                                                                                                                                                                    em_ba:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4109280
```

Pred. No. is the number of results predicted by chance to have a

score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

O	o o	0 0	a	<b>α</b> α	o o	0000	Result
44	440	0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	30 30 32 32 32 32 32 32 32 32 32 32 32 32 32	2234	17 18 19 20 21	8 9 10 11 11 11 11 11 11 11 11 11 11 11 11	ο τ 1 1 2 2 4 2 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
	57 57 57	រហេហហហ	57.6684		2.06.2	6759677996	462.2 462.2 462.2 460.6 210.8 210.8 210.8
		រាហាហាហាហាហាហា រាហាហាហាហាហាហា		5.7788			tch tch 4.7 4.7 4.6 0.4 0.4
15348	, , , , , , , , ,	1047 1466 1466 1472 1472	113193 13968 12454 12992 12992 268147	1542 2661 97683 42210 58930	4347 4347 8217 8217 3057 171187	945 802 966 1014 1015 975 89517 10029 9830 14034	Length 131955 170586 170587 339972 787 787 970 45714
H Q A		000000	12111	21284		111188888888	
	AR208551 AR208552 AF008300 AR174995 AR174996		AF357202 AE000901 AE002019 AE010370 AC116966		AB01710 E36126 AF41677 AMMMDEG AC11696	AY087084 AY117208 AY063828 AY060594 AY065366 AY07126 AE012835 AE005694	AP004676 AP005006 OSA307662 AY063029 AY035158 AC006224
Ar429313 nome sapi AX090442 Sequence AE007163 Mycobacte	208551 Sequence 208552 Sequence 008300 Dirofila 174995 Sequence 174996 Sequence	006773 006521 s 08522 s 08522 s 74965 s 74966 s	Strep Metha Deinc Metha Dicty	Ust 18 D 24 S 21 R		Arabido Arabido Arabido Arabido Arabido Arabido Chlorob Caligen	1 1

## ALIGNMENTS

REFERENCE	ORGANISM	SOURCE	KEYWORDS	VERSION	ACCESSION		DEFINITION	Locus	RESULT 1 AP004676/c
Eukaryota; Viridipiantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; Ehrhartoideae; Oryzeae; Oryza.	Cryza sativa (japonica cultivar-group)	Oryza sativa (japonica cultivar-group) (cultivar:Nipponbare) DNA,	HTG; HTGS_PHASE2.	AP004676.1 GI:18447935	AP004676	OJ1003_B06, *** SEQUENCING IN PROGRESS ***, in ordered pieces.	Oryza sativa (japonica cultivar-group) chromosome 2 clone	AP004676 131955 bp DNA linear HTG 21-MAR-2002	

```
JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ν̈́ο
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                        QΥ
                                                                                                                                                                                                                                                                                                                                                                                                  Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                    ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Db. 87597 GCCGCCGCGGTGACAGCAGTTCTGGCACCGTGTCCCACGCCCTCGAGGACGTTCCGCCG
                                                                                                                 δÃ
                                                                                                                                                         밁
                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                    Д
                                                                                                                                                                                                                                                                          δã
                                                                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                   δÃ
                                                                           밁
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 570; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                    87417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  87477 GACCGCCGTGGTCGCCGCGGCTGCGGCTGCGGCGGGGGGACTCGACGTCGGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           87537 CCGCAGCTGGGTCGCGGCTATCTGCCGGCCCGGCCCTGAAATGCCACCACAGTCGTCCCCT
                                                                                                                                                                                                                                         87297
                                                                                                                                                                                                                                                                                                                                                                                                                                          198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          147
                                       498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 27 GGCGGTGTCCACGGCAGCGCTTCTAGCCCCAATCCGAGCTCCAACCAGCGCGTTTATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Agrobiological Sciences, Rice Genome Research Program; Kannondai 2:1-2, Tsukubb, Ibaraki 305-8602, Japan (P-mail:tsasaki@nias.affrc.go.jp, URL:http://rgp.dna.affrc.go.jp/, Tel:81-298-38-7441, Fax:81-298-38-7468)
The nucleotide sequence of this BAC clone was generated by combining Monsanto and RCP-Japan sequencing data.

NOTE: It currently consists of 1 contigs. Gaps between the contigs are represented as runs of N. The order of the pieces is believed to be correct as given, however the sizes of the gaps between them are based on estimates that have provided by the submitter. This sequence will be replaced by the finished sequence as soon as it is available and the accession number will be preserved.

* NOTE: This is a 'working draft' sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCGCTCCCAGCTCACCTGTCATCGCCTCCACTCACTAAAATGCCGCCGCGCGCTGGGTCCAT 146
                                                                                                                                                                                                                                       CGTTTTCCACGGCGAGTGCTTCGTGGTGGGCGACAATATCGACACCGACCAGATCATCCC
  GCGCATCTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTACCCTCTGGAGCTCACGGA 557
                                                                               GCACGCGCCGTCGCCCTGGGCCGCCGCCGCCGCCGCCGTCGTGGCCGAGGGCTACGC
                                                                                                  GCACGCCCCGTCGCGCTTGGGGGCCGCTGGCGCACGCCCATTGTTGCCSGACGGCTACGC 497
                                                                                                                                                         GACCACCCGCTACGCCGTCATCATCGGCGGCGCCCAACTTCGGCTGCGGCTCCTCCCGCGA 87178
                                                                                                                                                                            GTCCTCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGTGCGGTTCCTCTCGCGA 437
                                                                                                                                                                                                                                                                                                                      GGCCGAGCACCTGACCCTGGTCCCGTCCAAGCCCGACGAGTACCGCAAGCTCGGCTCGTT
                                                                                                                                                                                                                                                                                                                                                              CGCCGAGCACCTCACTCTGGTGCCCTCCAAGCCGGACGAGTACCGCAAGCTCGGTTCCTT 317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C-----GTCCCCGCGGCCGCTGCTGCCGCGGCGGCAGCAGCTCGCCGTCGTCAGC 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sasaki,T., Matsumoto,T. and Yamamoto,K.
Direct Submission
Submitted (30-JAN-2002) Takuji Sasaki, National Institute of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sasaki,T., Matsumoto,T. and Yamamoto,K. oryza sativa nipponbare(GA3) genomic DNA, chromosome clone:OJ1003_B06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Published Only
2 (bases 1 to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              by the finished sequence as soon as it is available the accession number will be preserved.
Location Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (bases 1 to 131955)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              36297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /cultivar="Nipponbare"
/db_xref="taxon:39947"
/chromosome="2"
/clone="0J1003_B06"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Oryza sativa (japonica cultivar-group)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              29034 с
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              44.78;
78.28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            28880 g 37690 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 462.2; DB 2;
Pred. No. 5.4e-85;
1; Mismatches 149;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                54 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 131955;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                             87298
                                                                                                                                                                                                                                                                                                                                                                                                          87358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          87418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      87478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    87538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1;
```

В

30068 GGCGGCGGCGGTGACAGCAGTTCTGGCACCGTGTCCCACGCCCTCGAGGACGTTCCGCCG 30009

```
JOURNAL
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AP005006/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ф
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QУ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       맔
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 2
                                                                                                                           BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                          FEATURES
                                      Query Match
Best Local s
Matches 570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       87057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         86877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         86997
                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCCTGTAATTGAGGCGGGAGGGATCTTTGCCTACGCCCGGAAGACAGGAATGATTGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGTTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATGCTGG 677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CACTGGAGCCTGGAAGGAGTGCAAGACCGGGGATGTGGTCACGGTGGAACTTGATAATTG 86998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGTTGGGGCCTGGAAGGAGTGCAAGACAGGGGATGTGGTCACCGTGGACCTTGCTAACTC 617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAAAGCTGC 746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCGGTTATTGAGGCAGGCGGGATCTTTGCCTATGCCCGGAAGACCGGAATGATCGCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CAAGTCTGC 86869
GGCGGTGTCCACGGCAGCGCTTCTAGCCCCAATCCGAGCTCCAACCAGCGCGTTTATCCG
                                           al similarity 78.
570; Conservative
                                                                                                                                                                                                                                                                                                                                          NOTE: It currently consists of I contigs. Gaps between the contigs are represented as runs of N. The order of the pieces is believed to be correct as given, however the sizes of the gaps between them are based on estimates that have provided by the submitter. This sequence will be replaced by the finished sequence as soon as it is available and the accession number will be preserved.

* NOTE: This is a 'working draft' sequence.

* This sequence will be replaced

* This sequence will be replaced
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Oryza sativa (japonica cultivar-group)
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;
Ehrhartoideae; Oryzeae; Oryza.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Oryza sativa (japonica cultivar-group) (cultivar:Nipponbare) DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Oryza sativa (japonica cultivar-group) chromosome 2
*** SEQUENCING IN PROGRESS ***, in ordered pieces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Agrobiological Sciences, Rice Genome Research Program; Kannondai 2-1-2, Tsukuba, Ibaraki 305-8602, Japan (E-mail:tsasaki@nias.affrc.go.jp, URL:http://rgp.dna.affrc.go.jp/, Tsl:81-298-38-7441, Fax:81-298-38-7468)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sasaki,T., Matsumoto,T. and Yamamoto,K. Oryza sativa nipponbare(GA3) genomic DNA, clone:P0519E06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AP005006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AP005006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Direct Submission Submitted (27-MAR-2002) Takuji Sasaki, National Institute of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Published Only in Database (2002)
2 (bases 1 to 170586)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       clone:P0519E06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HTG; HTGS_PHASE2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AP005006.1 GI:19773546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sasaki, T., Matsumoto, T. and Yamamoto, K
                                                                                                                                                                                                                                                                                                              by the finished sequence as soon as it is the accession number will be preserved.
                                                                                                                                                46926
                                                                                                                                                Ø
                                                                                                                                                               /organism="Oryza sativa (japonica cultivar-group)"
/cultivar="Nipponbare"
/db_xref="taxon:39947"
/chromosome="2"
/clone="P0519E06"
                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matsumoto, T. and Yamamoto, K.
                                                                                                                                                37577 c 38026 g
                                                                44.78;
78.28;
                                           Score 462.2; DB 2;
Pred. No. 5.7e-85;
1; Mismatches 149;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    170586 bp
                                                                                                                                                  47905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DNA
                                                                                                                                                    đ
                                                                                                                                                    152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                   Indels
                                                                                      Length 170586;
                                                                                                                                                    others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HTG 28-MAR-2002 clone P0519E06,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2
                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               86938
            86
```

```
Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뮹,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    γŞ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 3
OSA307662/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Locus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      29708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          29588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  258
OSA307662

ON AJ307662

ON AJ307662

ON AJ307662

ON AJ307662

S acetylglutamate kinase-like protein; anaphase-promoting complex subunit 8-like; AP2 domain containing protein; AP2 domain transcription factor; AP2-related transcription factor; aquaporin; C1015ERIPDK gene; C1075ERIPDM gene; C1105ERIPDM gene; C1125ERIPDM gene; C125ERIPDM gene; C395ERIPDM gene; C440ERIPDK gene; C255ERIPDM gene; C395ERIPDM gene; C440ERIPDK gene; C740ERIPDM gene; C75ERIPDM gene; C785ERIPDM gene; C875ERIPDM gene; C875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAAAGCTGC 746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCGGTTATTGAGGCAGGCGGGATCTTTGCCTATGCCCGGAAGACCGGGAATGATCGCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCCTGTAATTGAGGCGGGAGGGATCTTTGCCTACGCCCGGAAGACAGGAATGATTGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGTCATGATCAACCACACCGGCAAGCAGCAGTACAAGCTGAAGCCTATCGGCGATGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGTTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCAAITGGTGATGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CACTGGAGCCTGGAAGGAGTGCAAGACCGGGGGATGTGGTCACGGTGGAACTTGATAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGCATCTTCTTCCGCAACTCCGTGGCCACCGGTGAGGTCTACCCGTTGGAGCTAGCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCACGCGCCCGTCGCGCTTGGGGGCCCCTGGCGCACGCGCCATTGTTGCSGAGGGCTACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GACCACCCGCTACGCCGTCATCATCGGCGGCGCCCAACTTCGGCTGCGGCTCCTCCCGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTCCTCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGTGCGGTTCCTCTCGCGA 437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGCCTTCGTCGGCCTCCCCACCGCGGCCTACCCGACGCCGTTCGTCGCCCCCGGCGAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCCTTCGCGGGGCTCCCATCCGCGGCCTACCCGACGCCGTTCGTCGCTCCGGGTGAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGCCGAGCACCTGGTCCCGTCCCAAGCCCGACGAGTACCGCAAGCTCGGCTCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGCCGAGCACCTCACTCTGGTGCCCTCCAAGCCGGACGAGTACCGCAAGCTCGGTTCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGTTTTCCACGGCGAGTGCTTCGTGGTGGGCGACAATATCGACACCGACCAGATCATCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GACCGCCGTGGTCGCCGCGGCTGCCGCTGCCGCCGGGGGGACTCGACGTCGGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C-----GTCCCCGCGCCGCTGCTGCCGCGGCGGCAGCAGCTCGCCGTCGTCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCGCAGCTGGGTCGCCGGCTATCTGCCGGCCCGCCCTGAAATGCCACCACAGTCGTCCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGTTGGGGCCTGGAAGGGTGCAAGACAGGGGATGTGGTCACCGTGGACCTTGCTAACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGCATCTTTTTCGCAACTCCGTGGCCACTGGAGGTGTACCCTCTGGAGCTCACGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          29949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          29529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      29649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            29589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                            exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    exon
                                                                                                                                                                                                                                                                                                                                                              intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Submitted (04-MAY-2001) Mayer K., MIPS, Intitute for Bioinformatics, GSF-National Research Center for Environment and Health, Ingolstaedter Landstr. 1, 85764 Neuherberg, Germany Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mayer, K., Murphy, G., Tarchini, R., Wambutt, R., Volckaert, G., Pohl, T., Duesterhoeff, A., Stiekema, W., Entian, K.D., Terryn, N., Lemcke, K., Haase, D., Hall, C.R., van Dodeweerd, A.M., Tingey, S.V., Mewes, H.W., Bevan, M. and Bancroft, I.

Conservation of microstructure between a sequenced region of the genome of rice and multiple segments of the genome of Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Spermatophyta; Magnoliophyta;
Ehrhartoideae; Oryzeae; Oryza.
1 (bases 1 to 339972)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Oryza sativa.
Oryza sativa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           W455ERIPDK gene; W485ERIPDM gene; W495ERIPDM gene; W505ERIPDM gene; W505ERIPDM gene; W505ERIPDM gene; W505ERIPDM gene; W505ERIPDM gene; W700ERIPDM gene; W700ER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mayer, K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Genome Res. 11 (7), 1167-1174 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DNA-binding protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Viridiplantae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11435398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 339972)
       join(8619. .8711,8793. .9131)
/gene="W30ERIPDM"
join(8619. .8711,8793. .9131)
/gene="W30ERIPDM"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product="putative protein"
/protein_id="CAC39030.1"
/protein_id="CAC39030.1"
/db_xref="GI:14140113"
/translation="MATGLPPSGLCTRTHPHSIKNRTFPFFIPAOGVDFPRPRSGYGA
PAGGSGTLLTYDGGAGSFEAATAARGLEARRCLAGSLASPRLTNRTSIQRKERNGELG
PAGGSGTLLTYDGGAGSFEAATAARGLEARRCLAGSLASPRLTNRTSIQRKERNGELG
IEWTDTLGICSWADISWAPRCYGPGSGGTTPSPAHPMCPNFRDENVIFYISLPHLLPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement (2896.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement(join(2504. 3725. .3864))
                                                                                                                                                                                                                     complement(3725. .3864)
/gene="C15ERIPDM"
                                                                                                                                                                                                                                                                                                /gene="C15ERIPDM"
/humber=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement(3153.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(3030.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement(2504.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RRLLHHHCCRHVTHSAAPAACAARRCCCHRGCCKCRATRAPLLLPPILAAGARRSGCCS
RCRRCAAAAAAGARRSGCCSRCRRCAAAAAAAGARAAAALLLPPPGRATPLLQPGR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(join(2504. .2895,3030.
                                                                                                                                                                                                                                                                                                                                                                                                  /gene="C15ERIPDM"
/number=>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="C15ERIPDM"
                                                                                                                                                                                        /number=
                                                                                                                                                                                                                                                                                                                                                                                              /number=2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /number=2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="C15ERIPDM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /number=3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="C15ERIPDM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /number=3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="C15ERIPDM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="C15ERIPDM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="C15ERIPDM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="taxon:4530"
/chromosome="2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Oryza sativa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .33997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Streptophyta; En
yta; Liliopsida;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .3305)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .2895)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .3152)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .2895,3030.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Embryophyta; Tracheophyta; a; Poales; Poaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .3152,3306.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .3475,
```

.31850))

```
exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                  exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     intron
                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                           exon
                    exon
                                                                       intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /number=18712..87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /translation="MAEGAELVGESAHODMPRYVAALAGILERVAGRNDAAATPAELA AAPASPERATAKPGISVRAYAARIARFAGCSPACYVVAYIYLDRLLRRGRRCLALALA VDSYSYURLLITAVLSAYKEMDDICYNNAYFAKVGGISLAEMNYLEVDFLFGVGFDLN VTPETFADYCAVLQSEMLCAAAPPTRLHYCCLSEDDAGSSSSSSLREAAMEAS" complement(16037. .16301)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /translation="mtvvaarrgreregapaarrwhgkggttwwwmrrcstvrsvvva
vwldgelgosstgrrspsgsggrmgmepklgpsggaggwgrgpsgndgeggareasee
Rirslopagsasspltarycspaclplllpsrprvaaavrr"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="putative protein"
/protein_id="CAC39031.1"
/db_xref="GI:14140114"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(join(16037./gene="C75ERIPDM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement(join(16037./gene="C75ERIPDM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation="mersgerrrervvaaalavlllvfasafvrcrgdadgegdgaga
aepgktgpplppgwkggsgsgogsspdgawrygwgwaaspggkgsgfgfgyggskgeg
gggggggggggkaygfggygghpggfgggggggggknygggsgglggygnygggy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product="putative protein"
/protein_id="CAC39032.1"
/db_xref="GI:14140115"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8793. .9131
/gene="W30ERIPDM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8712. .8792
/gene="W30ERIPDM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="W30ERIPDM"
                                                                                                                                          /product="WRKY-like DNA-binding protein"
/protein_id="CAC39034.1"
/protein_id="CAC39034.1"
/db_xref="GT:14140117"
/db_xref="GT:14140117"
/translation="MPLPPPLQLPCHPKLLQMPFDQEDQPGIHGVMLSSDHCGLYPLP
/translation="MPLPPPLQLPCHPKLLQMPFDQEDQPGIHGVMLSSDHCGLYPLP
ALPLSNSAAAAATVALGKHSAAAGSMRIGGAEDVATTVTKAGNESTTCNGSTTWWR
GSTMAAAGEKKMKIRKMREPFFCPQTRSEVDVLDDGYKWRKKGQKTVKNSLHPRSY
FRCTHSNCHVKKRVERLSTDCRMVITTYEGRHTHSPCDDNSSGEHTNCFSSF"
                                                                                                                                                                                                                                                                                     complement(join(20929. .21094,23560.
23964. .24200))
/gene="C90ERIPDM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(16302.
/gene="C75ERIPDM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="PREG-like protein"
/protein_id="CAC39033.1"
/db_xref="GI:14140116"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NGEPGGGGGAGEGGGYGGDYGGGDVGANWSKRGSFRGGGGKTQQKDGGGNN"
complement(23560.
/gene="C90ERIPDM"
                                                                                                                                                                                                                                                                                                                                        23964. .24200))
/gene="C90ERIPDM"
                                                                                                                                                                                                                                                                                                                                                                                                              complement(17591.
/gene="C75ERIPDM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="C75ERIPDM"
/number-~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="W50ERIPDM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'number=
                                                    complement(21095.
/gene="C90ERIPDM"
                                                                                                                                                                                                                                                                                                                                                                              complement(join(20929. .21094,23560.
                                                                                                                                                                                                                                                                                                                                                                                               /number=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /number=2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /number=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="W50ERIPDM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene="W50ERIPDM"
                                   /number=3
                                                                                          /number=4
                                                                                                                                                                                                                                                                        /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                   /number=1
                                                                                                           /gene="C90ERIPDM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ber='
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12944
                                                                                                                                                                                                                                                                                                                                                                                                                                    .17967)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .17590)
                      .23733)
                                                                                                                               .21094)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .16301,17591.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .16301,17591.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .17967))
                                                                                                                                                                                                                                                                                                                             .23733,23808.
                                                                                                                                                                                                                                                                                                                                                                                  .23733,23808.
                                                                                                                                                                                                                                                                                                                                                                                   .23869,
                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δδ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qγ
                                                                                                                                                                                                     Ω
                                                                                                                                                                                                                                          멍
                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Db
                                                                                                                               δÃ
                                                                                                                                                                   В
                          망
                                                          δõ
                                                                                             Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
Matches 569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            193312 CCGCAGCTGGGTCGCGGCTATCTGCCGGCCCGCTCTGAAATGCCACACAGTCGTCCCCT 193253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      193372
                                                                                                                                                                                                                                                                                                                                                                                                                                                           193252
                                                                                                                                                                       193012
                                                                                                                                                                                                                                        193072 CGCCTTCGTTGGCCTCCCCACCGCGGCCTACCCGACGCCGTTCGTCGCCCCCGGCGAGGA
                                                                                                                                                                                                                                                                                                                193132 GGCCGAGCACCTGACCCTGGTCCCGTCCAAGCCCGACGAGTACCGCAAGCTCGGCTCGTT
                                                                                                                                                                                                                                                                                                                                                                                     193192
                            192892
                                                                                                 192952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                intron
                                                                                                                                 438
                                                                                                                                                                                                                                                                              318
                                                                                                                                                                                        378 GTCCTCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGTGCGGTTCCTCTCGCGA 437
                                                                                                                                                                                                                                                                                                                                                   258
                                                                                                                                                                                                                                                                                                                                                                                                                         198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27
                                                                                                                                                                                                                                                                                                                                                                                   CGTATTCCACGGCGAGTGCTTCGTCGTGGGGGATAACATCGACACCGACCAGATCATCCC
                                                                                                                                                                                                                                                                                                                                                                                                      CGTTTTCCACGGCGAGTGCTTCGTGGTGGGCGACAATATCGACACCGACCAGATCATCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                         GACCGCCGTGGCCGCCGCCGCGGCGGCTGCCGCCGGCGGGGGACTCGACGTCGGCCGG 193193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCGCTCCCAGCTCACCTGTCATCGCCTCCACTCACTAAAATGCCGCCGCGCGCTGGGTCCAT 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCGGCGCCGGTGACAGCAGTTCTGGCACCGTGTCCCACGCCCTCGAGGACGTTCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGCGGTGTCCACGGCAGCGCTTCTAGCCCCCAATCCGAGCTCCAACCAGCGCGTTTATCCG 86
                                                                                                                                                                                                                                                           CGCCTTCGCGGGGCTCCCATCCGCGGCCTACCCGACGCCGTTCGTCGCTCCGGGTGAGGA 377
                                                                                                                                                                                                                                                                                                                                      CGCCGAGCCTCACTCTGGTGCCCTCCAAGCCGGACGACGAGTACCGCAAGCTCGGTTCCTT
                          GCGCATCTTCTTCCGCAACTCCGTGGCCACCGGTGAGGTCTACCCGTTGGAGCTAGCGGA 192833
                                                                                                                    GCACGCGCCCGTCGCGCTTGGGGGCCGCCGCGCCCATTGTTGCSGAGGGCTACGC
                                                                                                                                                                     GACCACCGCTACGCCGTCATCATCGGCGGCGCCAACTTCGGCTGCGCCTCCCCCGCGA
                                                          GCGCATCTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTACCCTCTGGAGCTCACGGA
                                                                                                 GCACGCGCCGTCGCCCTGGGCGCCGCCGCGCGCGCGCGTCGTGGCCGAGGGCTACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         569;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity 78.3
69; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -GTCCCCGCGGCCGCTGCTGCCGCGGCGGCAGCAGCTCGCCGTCGTCAGC 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(23964.
/gene="C90ERIPDM"
/number=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(23870./gene="C90ERIPDM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement(join(30589. .30712,31561. .31672,31787.
/gene="C110ERIPDM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement(join(30589./gene="C110ERIPDM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(23808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement(23734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product="putative protein"
/protein_id="CAC39035.1"
/db_xref="GI:14140118"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="C110ERIPDM"
/number=2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement(31561.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(30713.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="C110ERIPDM"
/number="
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     translation="MTYEVADORWAMDKVGSÄAGKGEVAVEEEGOFTRRRKKGLAGEL/SSSPSLAPLRLHALRROGORLTGTSROLDPVTPNLQAARSAALSHWGEEEVTSGL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /number=]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /number=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /number=2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /number=3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /number=2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="C110ERIPDM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /number=2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="C90ERIPDM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="C90ERIPDM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            44.68;
78.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 460.6; DB 8
Pred. No. 1.4e-84;
1; Mismatches 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .31560)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .23807)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .31672)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .24200)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    . 23963)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      , 23869)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .30712,31561.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .31672,31787.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   339972;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                           317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           193313
                                                                     557
                                                                                                                                          497
                                                                                                                                                                                                                                                                                                                         193073
                                                                                                                                                                                                                                                                                                                                                                                                                               257
                                                                                                                                                                              192953
                                                                                                                                                                                                                                                  193013
                                                                                                                                                                                                                                                                                                                                                                                             193133
                                                                                                         192893
```

1;

```
TITLE
JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
SOURCE
                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AY063029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Locus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   192832
                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CAAGTCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAAAGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCCTGTAATTGAGGCGGGAGGGATCTTTGCCTACGCCCGGAAGACAGGAATGATTGCGTC 737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGTCATGATCAACCACACCGGCAAGCAGTACAAGCTGAAGCCTATCGGCGATGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CACTGGAGCCTGGAAGGAGTGCAAGACCGGGGGATGTGGTCACGGTGGAACTTGATAATTG 192773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGTTGGGGCCTGGAAGGAGTGCAAGACACGGGATGTGGTCACCGTGGACCTTGCTAACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCGGTTATTGAGGCAGGCGGGATCTTTGCCTATGCCCGGAAGACCGGAATGATCGCATC 192653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGTTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATGCTGG 677
                                                                                                                                                                                                                                                      The Salk, Stanford, PGEC (SSP) Consortium members constructed and sequenced the pUNI (ORF) clones using the RAFL cDNAs: Yamada, K., Banh, J., Banno, F., Chang, E., Dale, J.M., Goldsmith, A.D., Lee, J.M., Onodera, C.S., Quach, H.L., Tang, C.C., Toriumi, M., Wu, H.C., Yamamura, Y., Yu, G., Yu, S., Bowser, L., Chen, H., Cheuk, R., Jones, T., Karlin-Neumann, G., Kim, C., Koesema, E., Lam, B., Lin, J., Meyers, M.C., Miranda, M., Nguyen, M., Palm, C.J., Shinn, P., Southwick, A., Tracy, S.E., Davis, R.W., Ecker, J.R. and Theologis, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2 (bases 1 to 787)

2 (bases 1 to 787)

Yamada, K., Banh, J., Banno, F., Chang, E., Dale, J.M., Goldsmith, A.D., Yamada, K., Banh, J., Banno, F., Chang, C.C., Toriumi, M., Wu, H.C., Lee, J.M., Onodera, C.S., Quach, H.L., Tang, C.C., Toriumi, M., Wu, H.C., Yamamura, Y., Yu, G., Yu, S., Bowser, L., Carninci, P., Chen, H., Cheuk, R., Hayashizaki, Y., Ishida, J., Jones, T., Kamiya, A., Cheuk, R., Hayashizaki, Y., Ishida, J., Jones, T., Kamiya, A., Cheuk, R., Hayashizaki, Y., Kim, C., Koesema, E., Lam, B., Lin, J., Meyers, M.C., Miranda, M., Narusaka, M., Nguyen, M., Palm, C.J., Sakurai, T., Satou, M., Seki, M., Shinn, P., Southwick, A., Tracy, S.E., Shinozaki, K., Davis, R.W., Ecker, J.R. and Theologis, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted (15-NOV-2001) Plant Gene Expression Center, 800 Buchanan Street, Albany, CA 94710, USA. The RIKEN Genomic Sciences Center (GSC) members carried out the collection and clustering of RAFL cDNAs (RAFL cDNA: 'RIKEN Arabidopsis Full-Length cDNA'): Scki,M., Narusaka,M., Ishida,J., Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai, J., Hayashizaki,Y. and Shinozaki,K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Arabidopsis thaliana putative subunit (At2g43090) mRNA, compAY063029
                                                                                                                                                                                ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Arabidopsis Open Reading Frame (ORF) Clones Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Lee,J.M., Toriumi,M., Yu,G., Brooks,S., Chao,Q., Chen,H.,
Karlin-Neumann,G., Kim,C., Lam,B., Miranda,M., Nguyen,M.,
Palm,C.J., Shinn,P., Southwick,A., Davis,R.W., Ecker,J.R. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Arabidopsis thaliana.
                                                                                                                                                                                                         Yamada, K. (SSP/PGEC) and Seki, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Theologis,A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Yamada, K., Liu, S.X., Sakano, H., Pham, P.K., Banh, J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AY063029.1 GI:17104628
                                                                                                                                                                                this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (bases 1 to 787)
                                                                                   s work. Shinozaki, K. (RIKEN GSC) contributed contributed equally to this work as PIs. Location/Qualifiers
1. .787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         192644
/organism="Arabidopsis thaliana"
/db_xref="taxon:3702"
/chromosome="2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         787 bp mRNA linear PLN 18-APR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Etgu, P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ishida, J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             192713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          617
```

RESULT 5 AY035158

rocus

DEFINITION

AY035158 970 bp mRNA linear PLN 24-AH Arabidopsis thaliana putative 3-isopropylmalate dehydratase, subunit (At2g43090) mRNA, complete cds.

PLN 24-APR-2002

```
BASE CO
                                                             밁
                                                                                                                           Ъ
                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                              δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
В
                             δõ
                                                                                       Ş
                                                                                                                                                        δÃ
                                                                                                                                                                                        Ъ
                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                      Ъ
                                                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                 Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local S
Matches 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                     445
 742
                                                               682
                                                                                                                            622
                                                                                                                                                                                          562
                                                                                                                                                                                                                                                       505
                                                                                                                                                                                                                                                                                      502
                                                                                                                                                                                                                                                                                                                                                    442
                                                                                                                                                                                                                                                                                                                                                                                    385
                                                                                                                                                                                                                                                                                                                                                                                                                 382
                                                                                                                                                                                                                                                                                                                                                                                                                                                  328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            202 TTCCACGGCGAGTGCTTCGTGGTGGGCGACAATATCGACACCGACCAGATCATCCCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           262 GAGCACCTCACTCTGGTGCCCTCCAAGCCGGACGAGTACCGCAAGCTCGGTTCCTTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             208 TTCCATGGACTGTGCTATGTCGTCGGCGACACATCGACACTGACCAAATCATTCCCGCG
                                                                                                                           AGTATTTTGATCATCATACGACTGGGAAAGAGTACAAGCTTAAGCCGATTGGTGATGCT
                                                                                                                                                                                                                                                                        ATCTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTACCCTCTGGAGCTCACGGACGTT
                                                                                                                                                                                                                                                                                                                                                                                                                 TCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGTGCGGTTCCTCTCGCGAGCAC
                              TCGAAAGCTGCTGCAT 751
                                                                              GGCCCTGTAATTGAGGCGGGAGGGATCTTTGCCTACGCCCGGAAGACAGGAATGATTGCG
                                                                                                                                                                                                                         GGGGCCTGGAAGGAGTGCAAGACAGGGGATGTGGTCACCGTGGACCTTGCTAACTCCG---
                                                                                                                                                                                                                                                                                                                     GCTCCGGTTTGTTTAGGAGCAGCGGGAGCTAAAGCAGTGGTGGCTCAGTCTTATGCTAGA
                                                                                                                                                                                                                                                                                                                                                    GCGCCCGTCGCGCTTGGGGCCGCTGGCGCACGCGCCATTGTTGCSGAGGGCTACGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                  ACGAAGTACTCATCATCATTGGCGGTGAAAACTTTGGATGTGGATCGTCACGTGAACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                TTAGTTGGTCTTCCA----GCTTCTTACAAGGAACGATTCGTTCAGCCAGGTGAGATGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTCGCGGGGCTCCCATCCGCGGCCTACCCGACGCCGTTCGTCGCTCCGGGTGAGGAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAGTTTCTCACTCTCGTCCCTTCGAATCCAGAGGAATACGAGAAACTCGGTTCTTACGCT
TCTGCTGCTTGAT
                                                                GGACCAGTGATTGATGCTGGTGGTATATTTGCTTATGCTAGGAAAGCTGGAATGATTCCA
                                                                                                                                                           ----TTTTTATTAACCACCCTCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATGCT
                                                                                                                                                                                        AGGGTTTGTGATGAGTGTACAACTGGTGATGTTGCGACTGTTGAGTTGAGGGAAGGAGAT
                                                                                                                                                                                                                                                       ATCTTTTTCAGGAACTCTGTTGCTACTGGTGAGGTTTATCCTTTGGATT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            362;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KPLVSREASSSFVTRSAAEPQERKTFHGLCYVVGDNIDTDQIIPAEFLTLVPSNPEEY
EKLGSYALVGLPASYKERFVQPGEMKTKYSIIIGGENFGCGSSREHAPVCLGAAGAKA
VVAQSYARIFFRNSVATGEVYPLDSEVRVCDECTTGDVATVELREGDSILINHTTGKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ecotype: Columbia"
1. .787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        YKLKPIGDAGPVIDAGGIFAYARKAGMIPSAAA"
757. .787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      subunit"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="At2g43090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="At2g43090"
183 c 187 s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /protein_id="AAL34203.1"
/db_xref="GI:17104629"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /evidence≔experimental
/product="putative 3-isopropylmalate dehydratase,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="At2g43090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="This clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /clone="U09710"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     translation="MAASLQSANPTLSRTLASPNKPSSFATFRSPFLRFNSTSVASNF/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 210.8; DB (
Pred. No. 2.1e-33)
0; Mismatches 18:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  st
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          182;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 787;
                                                                                                                                                                                                                                                       -CTGAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  small
                                                                                                                                                           675
                                                                                                                                                                                        621
                                                                                                                                                                                                                                                                                    561
                                                                                                                                                                                                                                                                                                                                                     501
                                                                                                                                                                                                                                                                                                                                                                                  444
                                                                                                                                                                                                                                                                                                                                                                                                                 441
                                                                                                                                                                                                                                                                                                                                                                                                                                                384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           267
                                                                                                                            681
                                                                                                                                                                                                                         619
                                                                                                                                                                                                                                                       561
                                                                                                                                                                                                                                                                                                                       504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ű
```

970;

12;

Gaps

ω,

381

```
TITLE
JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                             5'UTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Yamada, K., Liu, S.X., Sakano, H., Pham, P.K., Banh, J., Chung, M.K., Goldsmith, A.D., Lee, J.M., Quach, H.L., Toriumi, M., Yu, G., Bowser, L. Carninci, P., Chen, H., Cheuk, R., Hayashizaki, Y., Ishida, J., Jones, T., Kamiya, A., Karlin-Reumann, G., Kawai, J., Kim, C., Lam, B., Lin, J., Miranda, M., Narusaka, M., Nguyen, M., Palm, C.J., Sakurai, T., Satou, M., Seki, M., Shinn, P., Southwick, A., Shinozaki, K., Davis, R.W., Ecker, J.R. and Theologis, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AY035158
AY035158.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Arabidopsis thaliana.
Arabidopsis thaliana
Arabidopsis thaliana
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheopi
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Yamada, K., Liu, S.X., Sakano, H., Pham, P.K., Banh, J., Chung, M.K., Goldsmith, A.D., Lee, J.M., Quach, H.L., Tang, C.C., Toriumi, M., Yu, Gewser, L., Carninci, P., Chen, H., Cheuk, R., Hayashizaki, Y., Ishida, J., Jones, T., Kamiya, A., Karlin-Neumann, G., Kawai, J., Kim, C., Koesema, E., Lam, B., Lin, J., Meyers, M.C., Miranda, M., Narusaka, M., Nguyen, M., Palm, C.J., Sakurai, T., Satou, M., Seki, M., Shinn, P., Southwick, A., Shinozaki, K., Davis, R.W., Ecker, J.R. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Direct Submission
Submitted (10-MAY-2001) Plant Gene Expression Center, 800 Buchan Street, Albany, CA 94710, USA
RIKEN Genomic Sciences Center (GSC) members carried out the collection and clustering of RAFI CDNAS (RAFL CDNA: 'KIKEN Arabidopsis Full-Length cDNA'): Seki,M., Narusaka,M., Ishida,J., Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai,J., Hayashizaki,Y. and Shinozaki,K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The Salk, Stanford, PGEC (SSP) Consortium members carried out the sequencing and annotation of the RAFL CDNAS: Tamada, K., Liu, S.X., Sakano, H., Pham, P.K., Banh, J., Chung, M.K., Goldsmith, A.D., Lee, J.M., Quach, H.L., Tang, C.C., Toriumi, M., Yu, G., Bowser, L., Chen, H., Cheuk, R., Jones, T., Karlin-Neumann, G., Kim, C., Koesema, E. Lam, B., Lin, J., Meyers, M.C., Miranda, M., Nguyen, M., Palm, C.J., Shinn, P., Southwick, A., Davis, R.W., Ecker, J.R. and Theologis, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Theologis, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unpublished 2 (bases 1 to 970)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Yamada,K. (SSP/PGEC) and Seki,M. (RIKEN GSC) this work. Shinozaki,K. (RIKEN GSC) and Theo contributed equally to this work as PIS.
                                                                                                                                                                                                                                                                                                                                                      /clone="RAFL04-10-K01 (R09710)"
/note="This clone is in a modified
(Lambda ZAP) as a XhoI/SstI insert.
ecotype: Columbia"
                                                                                                                                                                                                                                                        /gene="At2g43090"
31. .786
                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Arabidopsis
/db_xref="taxon:3702"
/chromosome="2"
                   /translation="MAASLQSANPTLSRTLASPNKPSSFATFRSPFLRENSTSVASNF
KPLYSRASSSFVTRSAAEPQERKTFHGLCYVVGDNIOTDQIIAGETLTLVPSNPEEY
EKLGSYALUGLPASYKERFVQPGENKTRYSIIIGGENFGGSSREHAFVCLGAAGAK
VVAQSYARIFFRNSVATGEVYPLDSEVRVCDECTTGDVATVELREGDSILINHTTGKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                /evidence=experimental
/product="putative 3-isopropylmalate dehydratase,
                                                                                                                                                                                                                                                                                                                 /gene="At2g43090"
YKLKPIGDAGPVIDAGGIFAYARKAGMIPSAAA"
                                                                                                                                                                                                                               /gene="At2g43090"
                                                                                                     /protein_id="AAK59662.1"
/db_xref="GI:14334970"
                                                                                                                                                                                                            /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GI:14334969
                                                                                                                                                                                                                                                                                                    . 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                      a modified pBluescript
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Theologis, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             contributed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ophyta; Tracheophyta; core eudicots;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Toriumi, M., Yu, G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ted equally (SSP/PGEC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      800 Buchanan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sakurai, T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bowser, L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Вp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Дb
      JOURNAL
REFERENCE
                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                       RESULT 6
AC006224/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                        SOURCE
                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                  VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local :
                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3'UTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAGCACCTCACTCTGGTGCCCTCCAAGCCGGACGAGTACCGCAAĞCTCGGTTCCTTCGCC 321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTCCATGGACTGTGCTATGTCGTCGGCGACAACATCGACACTGACCAAATCATTCCCGCG 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTCCACGGCGAGTGCTTCGTGGTGGGCGACAATATCGACACCGACCAGATCATCCCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCGCCGTCGCGTTGGGGCCGCTGGCGCACGCGCATTGTTGCSGAGGGCTACGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACGAAGTACTCAATCATTGGCGGTGAAAACTTTGGATGTGGATCGTCACGTGAACAT 474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGGTGCGGTTCCTCTCGCGAGCAC 441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTAGTTGGTCTTCCA----GCTTCTTACAAGGAACGATTCGTTCAGCCAGGTGAGATGAAG 414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTCGCGGGGCTCCCATCCGGGCCTACCCGACGCCGTTCGTCGCTCCGGGTGAGGAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATCTTTTTCAGGAACTCTGTTGCTACTGGTGAGGTTTATCCTTTGGATT---CTGAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATCTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTACCCTCTGGAGCTCACGGACGTT 561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCTCCGGTTTGTTTAGGAGCAGCGGGAGCTAAAGCAGTGGTGGCTCAGTCTTATGCTAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCCCTGTAATTGAGGCGGGAGGGATCTTTGCCTACGCCCGGAAGACAGGAATGATTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----TTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   \tt GGGGCCTGGAAGGAGTGCAAGACAGGGGATGTGGTCACCGTGGACCTTGCTAACTCCG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCTGCTGCTTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCGAAAGCTGCTGCAT 751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGTATTTTGATCAATCATACGACTGGGAAAGAGTACAAGCTTAAGCCGATTGGTGATGCT
                                                                                                                                                                                                                                                                                  sequence.
AC006224
AC006224.4
      Unpublished
2 (bases 1
                                         Benito, M.-I., Carrera, A.J
Nierman, W.C., Fraser, C.M.
                                                                    Lin,X., Kaul,S., Shea,T.P.,
Barnstead,M.E., Mason,T.M.,
Benito,M.-I., Carrera,A.J.,
                                                                                                                                                                         Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
                                                                                                                                                                                                                                                                HTG.
                                                                                                                                                                                                                                                                                                                                             Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                     AC006224
                                                                                                                                                                                                                       Arabidopsis thaliana
                                                                                                                                                                                                                                          Arabidopsis thaliana.
                                                                                                                                                     Rosidae; eurosids
                                                                                                                                 (bases 1 to 45714)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   787. .9/0
/gene="At2g43090"
954
---"a+2g43090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="artifact within 210 c 211 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="At2g43090"
                                                                                                                                                                                                                                                                                                                                               thaliana
          ţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             787
                                                                                                                                                         II; Brassicales; Brassicaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                               45714 bp
chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 210.8; DB 8; Pred. No. 2.2e-33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                    Bowman, C.L., Ronning, C.M., Creasy, T.H., Buell, C.R., Tnd Venter, J.C.
                                                                                                               Fujii, C.Y., Shen, M., VanAken, S.E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 poly
280 t
                                                                                                                                                                                                                                                                                                                                                      N
                                                                                                                                                                                                                                                                                                                                                    clone MFL8
                                                                                                                                                                                                                                                                                                                                                                        DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         182;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A tail"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
```

675

711

619

591

651

534 501

map CIC10F02,

complete

PLN 27-FEB-2002

Arabidopsis

/gene="At2g43136"	repear_regron /ror_family="(TGG)n" /ror_family="(TGG)n" gene complement/63806652)		SEDMVHGSGECLVMWTSVERTEYE SEDMVHGSGECLVMWTSVERTEYE RDSKELQNQMEKLNDVFRRLCWF RDSDAAWYKEMEPCITPLPDVNI TNLMQRBVLYVDTKFKFLSNGEN	RHHPPQLHVPSISHYYSLPETSI PCHDPSTARQYSSIERHYRERERH VPFKRLAELKKTQNWVRLEGDRH	/protein_id="AAMI5161.i /db_xref="G1:20197632" /translation="MNPSQQHLE	/cdon_start=1 /codon_start=1 /product="hypothetical_	CDS complement(join(3457. 4359. 4674.4768. 4970 /gene="At2d43143"	/note="MrU6.4; predictor" mRNA complement(join(<3457. 43594674,47684970 /dene="At2d4143"	gene comptement(345/5/63) /gene="At2943143" //gene="At2943143"		VGVSGRDINLTKSVDTKETMKPP VTSILRMVKDYVDSNQTIGLGAJ KKRATVYORGTSYSESUNUTDD	VASDSTASSVQPSETKSTVTSA GTKANVEHEATETPLRVQAEKEE	TWIDLASSIEKAWIGIHIORG	/translation="MFAI SSI me	/product="unknown protein" /protein id="AAM15157.1"	2099. 2166,2260 /genė="Rt2g43146" /codon start=1	. CDS complement(join(4336	mRNA complement(join(<433671,762.		(ACO04450:153055).sequence F14B2 was deleted in MFL8" gene complement(4333077)	<pre>misc_feature complement(1, .17781) /note="overlap with BAC clone"/page 12.56.25"/ /note="overlap with BAC clone"/ /note="</pre>	/map="CIC10F02" /clone="MFL8"	/db_xref="taxon:3702" /chromosome="2"	/organism="Arabidopsis /cultivar="Columbia"	s Location/Qualifiers urce 145714	l Center Dr. Rockville.		Medical Center Dr., Rockvill 3 (bases 1 to 45714)	AUTHORS Lin.X.  TITLE Direct Submission  JOURNAL Submitted (09-MAR-2000) The Inst
_		TIGOVEDROLIGIMMWCEALSTEPRITOLIHANGVESLELDKODIDILLEMQRILR PEGAVIIRDREDVLVKVKAITNOMRWNGTMEPEDNSVEDHGTILIVDNSIK" 5518 5552	SPOMVHCSRCIANWIS SERTIS POGLIC KLAMETORY OF ALEMON PROSIDENT IN DEPTY SK SPOMVHCSRCIANWIS SERTIS POGLIC KLAMETORY URFERSY WYLSGEP PVASRYKEKNOK RDSKELONOMEKLNDVERRLCWEKI AESY PVVIWRKESNHLOCKKRUKALKEPGLCSS SDPDAAWYKEMEPCITPLPDVNDTNKTVLKNWPERLNHVPRMKTGSIQGTTIAGFKAD TNLWORRVLY YDDKEKELSNGKY RNVLDMIAGLGGFAALLKY PMYMNVVPOLIKON RCAMETOROGY CHEMON GEWINGENER FUNCTIONALIKY PMYMNVVPOLIKON	RHHPPQLHVPSISHYYSLPETSENRSSPPPLLLPPPPSSSSSLSSYFPLCPKNFTNYL PCHDPSTARQYSLERHYRRERHCPDLAQEKFRCLVPRPTGYKTPFPWPESRKYAWFRN VPFKRLAELKKTQNWYRLEGDRFVFPGGGTSFPGGVKDYVDVILSVLPLASGSIRTVL TGGGGVKEGFATTINGTITAGTTARATTARATTARATTARATTARATTARATTAR	PRICPERLEFFFPELLESLYYILTTIKTITISSQD	protein"	.573658,37493826,38994276, .4978,50955763))	TOICE MED 4: Predicted by genscan and grail" (complement(join(<34573658,37493826,38994276, 43594674,47684978,5095>5763))		SEGRSNVRNRRPTTSRIGSNIHTLNHNEDEAPFGDG	VGYSGRDINLTKSVDTKETMKPKDEGGEEEDGEKSKASDVHLNIRLPDGSSLOEKFS VTSILRMVKDYVNSNQTIGLGAVDLAVPYPRKVYTDQDLDKSLSELRLEDRQALVVVP RKRATUVORGTEYSESNNNTDPNSGGYFAYVRRVLSYANPFSYFGGGTANASSSYVER	VASPSTASSVQPSETKSTVTSASTTERNDGTVAVKGKESABSNUCDTVKNOPAPSVN GTKANVEHEATETPLRVQAEKEPIRPTAPGTNDNTSRVRSSVDRKRKQGTVINEEDSG	TREDLASSLERAUCHHIQAGSVDATNESALFARSONSETEVSSASSVVI DEGSVETEVE TWIDASVADSLSKYCILVHIQAGSVDATNESALFARSONSETEVSSASSVVI DEGSVETEVE TREDLASSLERAUCHHIQAGSVDATNESALFARSONSETEVSSASSVVI DEGSVETEVEN	PROCEDED TEED ROKKERT EVIZVE COEDERCOKE NOT	יי מינע	.2583,26892741,2955.	.1004,11931721,1803.	.671,7621004,11931721,18032021, 5,25022583,26892741,2955>3077))		guence between 11326 and 46597 in	F14B2			thaliana"	TOTAL TENTANCIA ST. COLUMN ST. CO	MD 20850, USA, cdtown@tigr.org			itute for Genomic Research, 9712
	gene	repeat_region				Ç	CDS	mRNA	gene					CDS	mRNA		gene					CDS	mRNA		gene			CDS	mRNA
/note="MFL8.7"	ŭ	MROKATS"  COMPLEMENT(1389013916)	FIGHT ACTORS WATERMALY GULLE Y LYONG LOCALDURG LINGUISTICS FOR FOLLOGISTICS FOR THE CONTROL OF THE PROPERTY OF THE CONTROL OF	/product="hypothetical protein" /protein_id="AAM15158.1" /protein_id="AAM15158.1" /db_xref="g::20197628"		1083710888,09821152,1114511219,1145211526, 1179611861,1213012182,1235512411,1268312730,	1290112964)) 1290112964)) /gene="%h22943080" rommlement/in/10/10/20 10/27 10/318 10/410.10/49 10/588	/note="MKL9.6; predicted by genscan and geneiinder" complement(join(<10120. 10227,10318. 10410,10499. 10588, 10837. 10888,10982. 11052,11145. 11219,11452. 11526, 11796. 11861 12130. 12182.12355. 12411,12683. 12730.	complement(1012012964) /gene="At2943080"	VVAQSYARIFFRNSVATGEVYFLUSEVRVCDECTTGDVATVELREGDSILINHTTCKE VKLKPIGDAGPVIDAGGIFAYARKAGMIPSAAA"	/translation""MAASLOSANDTLSRTLASPNAPSSFATTRSPPLRFNSTSVASNE KPLVSREASSSFVTRSAASPQERKTFHGLCYVVGDNITGTOTIPABETLTLVPSNPEBY FKLGSYALVGLPASYKERPVORGEMKTKYSITITGENFGGGSSRPHADVOLGAASKA	/protein id= %AM1513.1" /protein id= %AM1513.1" /db_xref="G1:20197634"	Small	complement(90079762)	complement(join(83918537,8995>9792)) /genre="A+2x43090"	<pre>/gene="At2943990" /note="MFL8.15; supported by full length cDNA:</pre>	HTTGKNYKLKSIGDAGFYIDAGGIFAYARMMGMIPSLA" complement(83919792)	SNQQERDETAAHALSGLPDFHKTRFIEPGENRSKYSIIIGGENFGCGSSREHAPVCLG AAGAKAIVAESYARIFFRNSVATGEVFFLESEVRVCEECKTGDTVTIELSDSGGLLTN	/ Translation="MAYSLFTEPQALPCSSTKTSSSLATERSPELRENGSTSLIPSSI / Translation="MayslFtEPQALPCSSTKTSSSLATERSPELRENGSTSLIPSSI SITSRGTSSPTIIPRAAASESDSNEALANTTFHGLCYVLKDNIDTDQIIPAGAACTFP	<pre>/product="3-isopropylmalate dehydratase, small subunit" /protein_id="AAM15160.1" /dh xref="G1.20197631"</pre>	/gene="At2g43100" /codon_start=1		5)	/gene="At2g43100" /note="MFL8.14; supported by cDNA: gi_16974632_gb_AY060594	PTEDKTIEKSRSNOGATONDEDSIIHWCTRHNGARDIRNIMNNHTR"  complement(70428055)	/PICCEIN_10""AAMAJA102.1"  /db_xref="GI:20197633"  /tb=scl=+4:on="Magmet undavendedddddddddddrdd ekkernettheeneegen	/codon_start=1 /product="hypothetical protein"	complement(63806652)	<pre>/note="MPL8.5; predicted by grail" complement(&lt;6380&gt;6652) /dene="RZQ443136"</pre>

```
Qy
                                                                                                                                  В
                                                                                                                                                             δÃ
                                                                                                                                                                                                   В
                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                δõ
                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ρy
                            δã
                                                            БР
 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local S
Matches 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mRNA
                                                                    9201
                                                                                                                                                                                                        9318
                                                                                                                                                                                                                                                                        9378
                                                                                                                                                                                                                                                                                                                                             9435
                                                                                                                                                                                                                                                                                                                                                                                                           9495 GAGTTTCTCACTCTCGTCCCTTCGAATCCAGAGGAATACGAGAAACTCGGTTCTTACGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          502
                                                                                                                                                                                                                                        442
                                                                                                                                                                                                                                                                                                           382
                                                                                                                                                                                                                                                                                                                                                                           322
                                                                                                                                                                                                                                                                                                                                                                                                                                           262
                                                                                                                                                                                                                                                                                                                                                                                                                                        GAGCACCTCACTCTGGTGCCCTCCAAGCCGGACGAGTACCGCAAGCTCGGTTCCTTCGCC
                                                                                                                                                                                                                                                                     GCGCCCGTCGCGCTTGGGGCCCCTGGCGCCACTGGCCCATTGTTGCCGGAGGGCTACGCGCGC
                                                                                                                                                                                                                                                                                                                                                             TICGCGGGGCTCCCATCCGCGGCCTACCCGACGCCGTTCGTCGCTCCGGGTGAGGAGTCC 381
AGTATTTGATCAATCATACGACTGGGAAAGAGTACAAGCTTAAGCCGATTGGTGATGCT 9082
                                                                    AGGGTTTGTGATGAGTGTACAACTGGTGATGTTGCGACTGTTGAGTTGAGGGAAGGAGAT
                                                                                                    GGGGCCTGGAAGGAGTGCAAGACAGGGGATGTGGTCACCGTGGACCTTGCTAACTCCG--
                                                                                                                                      ATCTTTTTCAGGAACTCTGTTGCTACTGGTGAGGTTTATCCTTTGGATT--
                                                                                                                                                                    ATCTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTACCCTCTGGAGCTCACGGACGTT
                                                                                                                                                                                                                                                                                                                                           TTAGTTGGTCTTCCA---GCTTCTTACAAGGAACGATTCGTTCAGCCAGGTGAGATGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                362;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                -TTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATGCT 675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(<18779. .>19472)
/gene="At2g43060"
/complement(18833. .18909)
/rpt_family="(TA)n"
complement(19002. .19472)
/gene="At2g43060"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           join(<13943..14092,14226..14384,14514..14625,14716..14835,
14957..15111,15327..15506,15608..15644,15728..15884,
16088..16141,16214..16306,16645..16787,16863..17005,
17197..17217,17377..17829)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="unknown protein"
/product="unknown protein"
/protein_id="AAM15159.1"
/db_xref="G1:20197629"
/db_xref="G1:20197629"
/ranslation="MSSEDPRHRYSALVLILLLIGFSVAAADDVSWTEDSSLESPGC
/translation="MSSEDPRHRYSALVLINGEDLDEMGCMEXDTSLEVSIVS:
TNKFQMYKYLNWYDGVEGDFLTGLTAQFGAALPSVPDQALRFPAAFVDPLDSCSHLSS
TNKFQMYKYLNWYDGVEGDFLTGLTAQAGFGAALLVINGKEDLDEMGCMEXDTSLEVSIPV
RLDGHIALSIRGNCAFTEKAKHAEAAGASALLVINGKEDLDEMGCMEXDTSLEVSIPV
RLMISKSGGDALNKSMVDNKNVELLLYAPKRPAVDLTAGLLLEMAVGTVYVASIWSELT
DPDQANESYSTLAKDVSSAGTEKDDPEKEILDISVTGAVFFIVTASIFILLLEFYFMSS
WFVWVLTIFFCIGGMQGMHNIIMAVILRKCRHLARKSVKLPLLGTMSVLSLLVINUVCL
AFAVFFIKHTSYSWYGGDLIGICLMITALQVVRLPNIKVATVLLCCAFVYDIFWYF
AFAVFFIKHTSYSWYGGDLIGICLMITALQVVRLPNIKVATVLLCCAFVYDIFWYF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          jóin(13943. .14092,14226. .14384,14514. .14625,14716. .1
14957. .1511,15327. .15506,15608. .15642,15728. .15884,
16088. .16141,16214. .16306,16645. .16787,16863. .17005,
17197. .17217,17377. .17486)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ASRVSESTILSSNPLERLILAPLEDLRYDKIKKRVISNGYFLWLTIGYGIGLLLTYLG
LAVILGIVRGELKELWNYGIEESESHTPEDPMPVA"
complement(18357. .18435)
/rpt_family="AT_rich"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(18779. .19472)
/gene="At2g43060"
/note="MFL8.8"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ISPLIFHESVMIVVAQGDSSTGESIPMLLRIPRFFDPWGGYDMIGFGDILFPGLLISF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20.4%;
65.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 210.8; DB 8;
Pred. No. 5e-33;
); Mismatches 182;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 45714;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                           -CTGAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                         9142
                                                                                                                                                                                                             9259
                                                                                                                                                                                                                                                                                                                                                9379
                                                                                                         619
                                                                                                                                           9202
                                                                                                                                                                             561
                                                                                                                                                                                                                                              501
                                                                                                                                                                                                                                                                                                              441
                                                                                                                                                                                                                                                                                                                                                                                                                                                   321
                                                                                                                                                                                                                                                                                9319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 7
AC004450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Locus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9021
                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                     mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Lin, X
```

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCCTGTAATTGAGGCGGGAGGGATCTTTGCCTACGCCCGGAAGACAGGAATGATTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCTGCTGCTTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGACCAGTGATTGATGCTGGTATATTTGCTTATGCTAGGAAAGCTGGAATGATTCCA 9022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCGAAAGCTGCTGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted (27-FEB-2002) The Institute for Genom Medical Center Dr. Rockville, MD 20850, USA, cd on Apr 18, 2002 this sequence version replaced Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (09-MAR-2000) The In-
Medical Center Dr., Rockville,
3 (bases 1 to 90283)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Rounsley, S.D., Lin, X., Shen, M., Ronning, C.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis.

1 (bases 1 to 90283)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AC004450
AC004450.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AC004450 90283 bp
Arabidopsis thaliana chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complete sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Town, C.D. and Kaul, S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (bases 1 to 90283)
                                                                                                                                                                                                                                                                                                    complement(Join(<1. .405,565. .585,777. .919,995. .1137, 176. .1568,1641. .1694,1898. .2054,2140. .2174,2276. .2455, 2671. .2825,2947. .3066,3157. .3268,3398. .3556,3690. .>3839))
/gene="htt2g43105"
complement(Join(296. .405,565. .585,777. .919,995. .1137, 1476. .1568,1641. .1694,1898. .2054,2140. .2174,2276. .2455, 2671. .2825,2947. .3066,3157. .3268,3398. .3556,3690. .3839))
/gene="htt2g43105"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(1. .53055)
/note="overlap with BAC clone
(AC06224:1. .17781).sequence
F14B2 was deleted in MFL8"
             /traisiation="missedpepnhrysalvlillligesynaaddysmtedsslespec
/traisiation="missedpepnhrysalvlilliligesynaaddysmtedsslespec
ringfomykulmwogyegdeijfglyaapgaalipsvedomalbaafyddelocshlos
Ridghialsirgomaterakhaeaapasallvindkedlebemcymsdysslwsiev
Lmiskssgdalinkswydnknyelllyapkrpadutaglillmaygtvyaslwselt
pedombesysilakdyssagtrkddereildisvigadyffytasifelluniver
meywyltiefccigmomhnilmayllrkchharksykledlgstytatedifwytasifelluniver
isplifhesymivagdssggesipmilgichtfreddwggydnigggdiffelisf
replifhesymivagdssggesipmilgichtripheggydnigggdiffelisf
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="At2g43105"
/note="F1/m^
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone="F14B2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /db_xref="taxon:3702"
/chromosome="2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           organism="Arabidopsis"
                                                                                                                                                                                                                             /product="unknown protein"
/protein_id="AAM14939.1"
/db_xref="GI:20197149"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /map="CIC10F02"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /cultivar="Columbia
ASRVSFSTILSSNPLPRLILAPLFDLRYDKIKKRVISNGYFLWLTIGYGIGLLLTYLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GI:20197142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Kaul,S., Shea,T.P., Fujii,C.Y., Mason,T.M.,
Fraser,C.M., Somerville,C.R. and Venter,J.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Institute for
le, MD 20850, t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DNA linear PLN 11-MAR-2002
2 clone F14B2 map CIC10F02,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MFL8
between 11326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         or Genomic
USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cdtown@tigr.org
ed gi:6598417.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Research,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Research,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      46597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         'n
```

```
gene
                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mRNA
  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                         misc_RNA
                                                                                                                                                                                                                                                                                               misc_RNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                    /gene="At2g43137"
12124 . 12220
/gene="At2g43137"
/product="Ath-chr2-sno27"
/note="snorNA gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  join(4818. .4881,5052. .5099,5371. .5427,5600. .5652,5921. .5986,6256. .6330,6563. .6637,6730. .6800,6894. .7194. .7283,7372. .7464,7555. .7662)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note-"F14B2.2; predicted by genscan and genefinder"
/note-"F14B2.2; predicted by genscan and genefinder"
join(<4818. .4881,5052. .5099,5371. .5427,5600. .5652,
5921. .5986,6256. .6330,6553. .6637,6730. .6800,6894. .6945,
7194. .7283,7372. .7464,7555. .>7662)
/gene-"At2g43080"
/gene-"At2g43080"
/gene-"At2g43080"
/gene-"At2g43080"
/gene-"At2g43080"
/gene-"At2g43080"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LAVILGLVRGELKELWNYGIEESESHTPEDPMPVA"
3866. .3892
/rpt_family="(GAA)n"
                                                                                                                                                                                                                                                                                                                                                                                    /product="3-isopropylmalate dehydratase, small subunit"
/protein_id="AAC64299.1"
/db_xref="Gil3763919"
/db_xref="Gil3763919"
/translation="MAYSLPTFPQALPCSSTKTSSSLATFRSPFLRFNGSTSLIPSSI
/translation="MAYSLPTFPQALPCSSTKTSSSLATFRSPFLRFNGSTSLIPSSI
SITSRGTSSPTIIPRAAASESDSNEALANTTFHGLTVLKDNIDTDQIIPAGAACTFP
SNOQDERDEIAAHALSGLDPHKTRFTEDFENRKYSTIIGENFEGGSSFREHAPVCE
SNOQBRDEIAAHALSGLDPHKTRFTEDFENRYCEBCKTGDTVTIELSDSGGLLTN
AAGAKAIVAESYARIFFRNSVATGEVFPLESEVRVCEBCKTGDTVTIELSDSGGLLTN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="At2g43100"
9748. .10518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation-"MAASLQSANPTLSRTLASPNKPSSFATFRSPPLRFNSTSVASNF
KPLYSREASSSFYTRSAAEPQERKTFHGLCYVVGDNLDTDQ1IPAEPLTLYDSNFEEY
EKLGSYALVGLAASYKERFVQPEMKTRYSIIIGENFGGGSREHAPVCLGAAQAKA
VVAQSYARIFFRNSVATGEVYPLDSEVRVCDECTTGDVATVELREGDSILINHTTGKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  join(7990. .8787,9245.
/gene="At2g43090"
8020. .8775
/gene="At2g43090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7990. .9391
/gene="At2g43090"
/note="F14B2.3; supported by full length
Ceres:31507"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AI ARPILOYSTVUDVKTGKGVKSDVFTSGKFLTHVERSYP I IQALEKRIAVESOYPA
BNGBLIQYLRYBOQFYKEHBDY FADTENLREGGDEVATMLYLTDDVEGGEKWSATKW
GDGDCTCGGK IMKGISVKPTKGDAVLFWSMGLDGQSDPRSIHGGCEVLSGEKWSATKW
                                                                                                                       /gene="At2g43138"
12301. .12379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /Godon_start=1/product="3-isopropylmalate dehydratase, small subunit"/protein_id="AAC64298.1"
/db_xref="GI:3763918"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /translation="mapamkivfGLLIFvTvGmvIGSLLQLafinkLeDSyGTGFPSL
RGLRGQNTRYLRDvSrWaNDKDaELLRIGNVKPEVVSWSPRIIVLHDFLSPEECEYLK
                                                                                                                                                                        (http://rna.wustl.edu/snoRNAdb/Arabidopsis/)"
12301. .12379
                                                                                                                                                                                                                                                                                                                                                                     HTTGKNYKLKSIGDAGPVIDAGGIFAYARMMGMIPSLA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene-"At2g43100"
/note-"F14B2.4; supported by cDNA: gi_16974632_gb_AY060594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="hypothetical protein"
/protein_id="AAC64297.1"
/db_xref="GI:3763917"
  (http://rna.wustl.edu/snoRNAdb/Arabidopsis/)"
12462. .12540
                                              /note="snoRNA gene
                                                                                               /gene="At2g43138"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9748. .10518
/gene="At2g43100"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KKKPIGDAGPVIDAGGIFAYARKAGMIPSAAA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'gene="At2g43080"
                                                                           /product="Ath-chr2-sno28"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .9391)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDNA:
  В
                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_teature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_RNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_RNA
                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
Local
                                                                                                                       Similarity
                                                                                                                                                                                          complement(26201. .26225)
/rpt_family="AT_rich"
complement(29414. .29451)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="F14B2.8; predicted by genefinder"

complement(join(<21439. .21519,21599. .21664,21808. .21939,

22711. .23012,24396. .>24702))

/gene="At2g43140"

complement(join(21439. .21519,21599. .21664,21808. .21939,

22711. .23012,24396. .24702))

/gene="At2g43140"

/codon_sut: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(18011. .18045)
/rpt_family="AT_rich"
complement(18719. .19970)
/gene="At2g43130"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /rpt_family="AT_rich" complement(17020...17074) /rpt_family="AT_rich"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="molecular marker m551"
complement(14897. .14925)
/rpt_family="AT_rich"
complement(15739. .15760)
/rpt_family="AT_rich"
                                                                                                                                                                                                                                                                                                                 /translation="myppnsskstahdgggdadtnqydsaagatrdesslgpqthhhp
ppqrqohqonnluyghyldgebsslgebsnassssslerhasslpatropagatydghtpqdbh
gesucarphggydgggggdegpsrlkselressgsssshgbhusllprisbyeaaaarnova
sssmsfgnnrtnnmdnssshisettidqpgkrsknsdfftletqysmpqttlematmen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(join(18962. .19272,19634. .19967))
/gene="At2g43130"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /rpt_1
16763.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="At2g43141"
12626. .12700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NVKTAFEMVIREIYSNISRKQLNSDSYKEELTVNRVSLVKNENEGTKTFSCCSR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /translation="MSDDDERGEEYLFKIVIIGDSAVGKSNLLTRYARNEFNPNSKAT
IGVEFQTQSMLIDGKEVKAQIWDTAGQERFRAVTSAYYRGAVGALVVYDITRSSTFEN
VGRWLDELNTHSDTTVAKMLIGNKCDLESIRAVSVEEGKSLAESEGLFFMETSALDST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="At2g43139"
12462. 12540
/gene="At2g43139"
                                                                                                                                                                                                                                                                  LMNIPEDSVPCRARAKRGFATHPRSIAERERRTRISGKLKKLQELVPNMDKQTSYADM
LDLAVEHIKGLQHQVEVRP"
                                                                                                                                                                                                                                                                                                                                                                                                           /product="hypothetical protein"
/protein_id="AAC64303.1"
/db_xref="GI:3763923"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="At2g43140"
/note="F1/E2243140"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="Ras-related GTP-binding protein (ARA-4)"
/protein_id="AAC64302.1"
/db_xref="GI:3763922"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14493.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product="Ath-chr2-sno29"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /rpt_family-"AT_rich"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (http://rna.wustl.edu/snoRNAdb/Arabidopsis/)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="snoRNA gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="Ath-chr2-sno28a"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="At2g43141"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (http://rna.wustl.edu/snoRNAdb/Arabidopsis/)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="snoRNA gene
                                                                                                                    20.4%;
                                                                                             Score 210.8; DB 8; Pred. No. 5.8e-33; 0; Mismatches 182;
                                                                                                                                           Length 90283;
                                                                                               12;
```

Gaps

```
RESULT 8
AY087084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ф
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POCUS
                                                                                         COMMENT
                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                              TITLE
JOURNAL
                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                       TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                            JOURNAL
                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCCCTGTAATTGAGGCGGGAGGGATCTTTGCCTACGCCCGGAAGACAGGAATGATTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTCCGGTTTGTTTAGGAGCAGCGGGAGCTAAAGCAGTGGTGGCTCAGTCTTATGCTAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGTGCGGTTCCTCTCGCGAGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGTATTTTGATCAATCATACGACTGGGAAAGAGTACAAGCTTAAGCCGATTGGTGATGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGGGTTTGTGATGAGTGTACAACTGGTGATGTTGCGACTGTTGAGTTGAGGGAAGGAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGGCCTGGAAGGGGAGTGCAACACAGGGGGATGTGGTCACCCGTGGACCTTGCTAACTCCG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATCTTTTTCAGGAACTCTGTTGCTACTGGTGAGGTTTATCCTTTGGATT----CTGAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATCTTTTTCGCAACTCCGTGGCCACTGGAGAGGGTGTACCCTCTGGAGCCTCACGGACGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGCCCGTCGCGCTTGGGGCCCTGGCGCACGCGCCATTGTTGCSGAGGGCTACGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACGAAGTACTCAATCATTGGCGGTGAAAACTTTGGATGTGGATCGTCACGTGAACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTAGTTGGTCTTCCA - - - GCTTCTTACAAGGAACGATTCGTTCAGCCAGGTGAGATGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTCGCGGGGCTCCCATCCGCGGCCTACCCGACGCCGTTCGTCGCTCCGGGTGAGGAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCGAAAGCTGCTGCAT 751
available to TIGR and Genbank. The following quality assessment of this set was done by comparison with known proteins: two percent of the clones are estimated to be 5'-truncated; less than one percent are 3'-truncated; approximately two percent represent alternative splice variants, including unspliced introns and spliced exons; one
                                                                                                                                                                                                                                                                                                                                                                                                     Arabidopsis thaliana
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnollophyta; eudicotyledons; core eudicots;
Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                               Genome Biol. (2002) In press 2 (bases 1 to 945) Broyer, V., Troukhan, M., Alexi
                                                                                                                                                                                                                                                                                                                               Haas, B.J., Volfovsky, N., Town, C.D., Troukhan, M., Aley Feldmann, K.A., Flavell, R.B., White, O. and Salzberg, S. Full-length messenger RNA sequences greatly improve c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Arabidopsis thaliana clone
AY087084
                                                                                     Malibu, CA 90265, USA
This clone sequence is one of 5,000 Ceres full-length cDNAs
                                                                                                                    Direct Submission
Submitted (11-MAR-2002) Ceres, Inc,
                                                                                                                                                                                               Unpublished 3 (bases 1
                                                                                                                                                                           Brover, V., Troukhan, M.,
                                                                                                                                                                                                                                                                                                                      annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            thale cress.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AY087084.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AY087084
                                                                                                                                                                                                                                Full-Length cDNA from
                                                                                                                                                                                                                                                 Feldmann, K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -TTTTTATTAACCACCACCTCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATGCT
                                                                                                                                                                                          (bases 1 to 945)
                                                                                                                                                                                                                                                                                                                                                                                      (bases 1 to 945)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GI:21405808
                                                                                                                                                                                                                                Arabidopsis
                                                                                                                                                                                                                                                                 Alexandrov, N.,
                                                                                                                                                                             Alexandrov, N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              945 bp mRNA
ne 31507 mRNA,
                                                                                                                                                                                                                              thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mRNA
                                                                                                                          3007 Malibu Canyon
                                                                                                                                                                                                                                                                                                                                                                       Troukhan, M., Alexandrov, N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complete
                                                                                                                                                                             Lu, Y.-P.,
                                                                                                                                                                                                                                                                 Lu, Y. -P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sequence
                                                                                                                                                                             Flavell, R.
                                                                                                                                                                                                                                                                   Flavell, R.
                                                                                                                                                                                                                                                                                                                                     genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PLN 26-JUN-2002
                                                                                                                            Road
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              321
                                                                                       made
                                                                                                                                                                                                                                                                   and
```

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                     Вb
                                                                                                                                                                                                                                                                                                                                                           멍
                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
뮍
                        δõ
                                                                   В
                                                                                                  δÃ
                                                                                                                                         В
                                                                                                                                                                           δõ
                                                                                                                                                                                                             B
                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                              475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            712
                                                                                                                                                                                                                 592
                                                                                                                                                                                                                                                                                       535
                                                                                                                                                                                                                                                                                                                           502
                                                                                                                                                                                                                                                                                                                                                                                              442
                                                                                                                                                                                                                                                                                                                                                                                                                                  415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                      GGGGCCTGGAAGGAGTGCAAGACAGGGGATGTGGTCACCGTGGACCTTGCTAACTCCG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGTGCGGTTCCTCTCGCGAGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAGCACCTCACTCTGGTGCCCTCCAAGCCGGACGAGTACCGCCAAGCTCGGTTCCTTCGCC
                                                                                                                                                                                                                                                                                                          ATCTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTACCCTCTGGAGCTCACGGACGTT
                                                                                                                                                                                                                                                                                                                                                                                 GCGCCCGTCGCGCTTGGGGGCCCCCCCCCCCTTGTTGCCGGAGGGCTACGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTCGCGGGGCTCCCATCCGCGGCCTACCCGACGCCGTTCGTCGCTCCGGGTGAGGAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAGTTTCTCACTCTCGTCCCTTCGAATCCAGAGGAATACGAGAAACTCGGTTCTTACGCT
                                TCGAAAGCTGCTGCAT 751
                                                                   GGACCAGTGATTGATGCTGGTGGTATATTTGCTTATGCTAGGAAAGCTGGAATGATTCCA
                                                                                                     GGCCCTGTAATTGAGGCGGGAGGGATCTTTGCCTACGCCCGGAAGACAGGAATGATTGCG
                                                                                                                                           AGTATTTTGATCAATCATACGACTGGGAAAGAGTATAAGCTTAAGCCGATTGGTGATCCT
                                                                                                                                                                               ----TTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATGCT
                                                                                                                                                                                                                 AGGGTTTGTGATGAGTGTACAACTGGTGATGTTGCGACTGTTGAGTTGAGGGAAGGAGT
                                                                                                                                                                                                                                                                                       ATCTTTTTCAGGAACTCTGTTGCTACTGGTGAGGTTTATCCTTTGGATT--
                                                                                                                                                                                                                                                                                                                                                            GCTCCGGTTTGTTTAGGAGCAGCGGGAGCTAAAGCAGTGGTGGCTCAGTCTTATGCTAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                  ACGAAGTACTCAATCATTGGCGGTGAAAACTTTGGATGTGGATCGTCACGTGAACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTAGTTGGTCTTCCA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                percent may contain premature stop codons; five percent may have frame shifts in a coding region. A sequence is considered to be 5'-truncated if it lacks the translation initiation start (ATG). A sequence is considered to be 3'-truncated if it lacks the C-terminal end of the encoded protein. Please note that these cDNA sequences are derived from the Ws or LAer ecotypes and therefore
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              may contain polymorphisms when compared to sequences from Col-0. Genset carried out the library production and sequencing of the full-length clones. Ceres, Inc. carried out the clustering of the 5' sequences, selection of clones, and sequence assembly.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="MAASLQSANPTLSRTLASPNKPSSFATFRSPFLRENSTSVASNF KPLVSRASSSFVTRSAAEPQERKTEHGLCYVVGDNIOTDQILPAEFLTLVPSNPEEY EKLGSYALVGLPASYKERFVQPGEMKTKYS I LIGGENFGCGSSREHAPVCLGAAGAKA VVAQSYARIFFRNSVARGEVYPLDSEVBVCDECTTGDVATVELREGDSILINHTTGKE YKLKPIGDAGPVIDAGGIFAYARKAGMIPSAAA"

208 c 210 g 281 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product="3-isopropylmalate dehydratase,
/protein_id="AAM64645.1"
/db_xref="GI:21592696"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Arabidopsis/db_xref="taxon:3702"/clone="31507"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            . 786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20.3%;
 787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -GCTTCTTACAAGGAACGATTCGTTCAGCCAGGTGAGATGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pred. No. 4.8e-33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           945;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        small subunit"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                      474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    297
                                                                           771
                                                                                                                                             711
                                                                                                                                                                                 675
                                                                                                                                                                                                                       651
                                                                                                                                                                                                                                                       619
                                                                                                                                                                                                                                                                                                                              561
                                                                                                                                                                                                                                                                                                                                                                534
                                                                                                                                                                                                                                                                                                                                                                                                  501
                                                                                                         735
                                                                                                                                                                                                                                                                                          591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         w
••
```

```
TITLE
JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 9
AY117208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Direct Submission

Submitted (03-JUN-2002) Plant Gene Expression Center, 800 Buchanan Street, Albany, CA 94710, USA

The RIKEN Genomic Sciences Center (GSC) members carried out the collection and clustering of RAFL cDNAs (RAFL cDNA: 'RIKEN Arabidopsis Full-Length cDNA'): Seki.M., Narusaka.M., Ishida,J. Saturai,T., Carninci,P., Kawai, J., Hayashizaki,Y. and Shinozaki,K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Yamada,K., Banh,J., Chan,M.M., Chang,C.H., Chang,E., Dale,J.M., Deng,J.M., Goldsmith,A.D., Lee,J.M., Onodera,C.S., Quach,H.L., Tang,C., Toriumi,M., Wu,H.C., Yamamura,Y., Yu,G., Bowser,L., Carninci,P., Chen,H., Cheuk,R., Hayashizaki,Y., Ishida,J., Jones,T., Kamiya,A., Karlin-Neumann,G., Kawai,J., Kim,C., Lam,B., Jin,J., Miranda,M., Narusaka,M., Nguyen,M., Palm,C.J., Sakurai,T., Saku,M., Shinn,P., Southwick,A., Shinozaki,K., Davis,R.W., Ecker,J.R. and Theologis,A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The Salk, Stanford, PGEC (SSP) Consortium members constructed an sequenced the pUNI (ORF) clones using the RAFL cDNAs: Yamada,K., Banh,J., Chan,M., Chang,C.H., Chang,E., Dale,J.M., Deng,J.M., Goldsmith,A.D., Lee,J.M., Onodera,C.S., Quach,H.L., Tang,C.C., Toriumi,M., Wu,H.C., Yamamura,Y., Yu,G., Bowser,L., Chen,H., Cheuk,R., Jones,T., Karlin-Neumann,G., Kim,C., Lam,B., Lin,J., Miranda,M., Nguyen,M., Palm,C.J., Shinn,P., Southwick,A., Davis,R.W., Ecker,J.R. and Theologis,A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unpublished
2 (bases 1 to 802)
Yamada,K., Banh,J., Chan,M.M., Chang,C.H., Chang,E., Dale,J.M.,
Deng,J.M., Goldsmith,A.D., Lee,J.M., Onodera,C.S., Quach,H.L.,
Tang,C.C., Toriumi,M., Wu,H.C., Yamamura,Y., Yu,G., Bowser,L.,
Carninci,P., Chen,H., Cheuk,R., Hayashizaki,Y., Ishida,J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Yamada,K. (SSP/PGEC) and Seki, M. (RIKEN GSC) contributed equally to this work. Shinozaki,K. (RIKEN GSC) and Theologis,A. (SSP /PGEC) contributed equally to this work as PIs.

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Jones, T., Kamiya, A., Karlin-Neumann, G., Kawai, J., Kim, C., Lam, B., Lin, J., Miranda, M., Narusaka, M., Nguyen, M., Palm, C. J., Sakurai, T., Satou, M., Seki, M., Shinn, P., Southwick, A., Shinozaki, K., Beker, J.R. and Theologis, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Rosidae, eurosids II
1 (bases 1 to 802)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Arabidopsis thaliana putative 3-isc
subunit (At2943100) mRNA, complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AY117208.1 GI:21436288
                                                                                                                                                                                                                                                    /gene="At2g43100"
1. .771
                                                                                                                                                                                                                                                                                                                                         /note="This clone
ecotype: Columbia"
/protein_id="AAM51283.1"
/db_xref="GI:21436289"
/translation="MAYSLPTFPQALPCSSTKTSSSLATFRSPFLRFNGSTSLIPSSI
                                                                                                                     /evidence=experimental
/product="putative 3-i
                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Arabidopsis
/db_xref="taxon:3702"
/chromosome="2"
                                                                                                                                                                                   /gene="At2g43100"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                   /clone="U11883"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                802 bp mRNA Linea. ative 3-isopropylmalate dehydratase small complete cds.
                                                                                                                                                                                                                                                                                                                                                                      is
                                                                                                                     3-isopropylmalate
                                                                                                                                                                                                                                                                                                                                                                      in
                                                                                                                                                                                                                                                                                                                                                                      puni 51
                                                                                                                        dehydratase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PLN 17-JUN-2002
```

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                  RESULT 10
AY063828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ωy
                                                                                                                                                                                                                                                                                                         멍
                                                                                                                                                                                                                                                                                                                                                                            Вþ
                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                 REFERENCE
                                                                                                                          KEYWORDS
                                                                                                         SOURCE
                                                                                                                                             VERSION
                                                                                                                                                               ACCESSION
                                                                                                                                                                                               DEFINITION
                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
   AUTHORS
                                                                                                                                                                                                                                                                                                                                           738
                                                                                                                                                                                                                                                                                                                                                                              702
                                                                                                                                                                                                                                                                                                                                                                                                                                                   642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  144 CATCGTCCCCGCGGCCGCTGCTGCCGCGGCGGCAGCTCGCCGTCGTCAGCCGTTTT 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local
                                                                                                                                                                                                                                                                                                                                                                                                   CCCTGTAATTGAGGCGGGAGGGATCTTTGCCTACGCCCGGAAGACAGGAATGATTGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCGCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGTGCGGTTCCTCTCGCGAGCACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGCGGGGCTCCCATCCGCGGCCTACCCCGACGCCGTTCGTCGCCCGGGTGAGGAGTCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCACGGCGAGTGCTTCGTGGTGGGCGACAATATCGACACCGACCAGATCATCCCCGCCGA 263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CATCCCACGTGCTGCCGCCTCAGAATCCGACTCTAACGAAGCCCTAGCCAACACAACCTT 227
                                                                                                                                                                                                                                                                                                                                           GAAAGCT 744
                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTTATTGACTAATCACACGACCGGTAAAAACTATAAGCTGAAGTCGATCGGTGATGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      --TTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCCTGGAAGGAGTGCAAGACAGGGGATGTGGTCACCGTGGACCTTGCTAACTCCG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTTTTTCCGTAACTCGGTTGCTACAGGAGAGGTGTTTCCGCTCGAG---TCAGAGGTTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTACCCTCTGGAGCTCACGGACGTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCCGGTCTGTCTTGGAGCAGCTGGAGCTAAAGCCATAGTTGCTGAGTCTTACGCAAGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCCGTCGCGCTTGGGGCCGCTGGCGCACGCGCCATTGTTGCSGAGGGCTACGCGCGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTCTGGTCTACCA---GACTTCCACAAAACACGGTTCATTGAGCCAGGAGAGAACAGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGCCGCTTGCACCTTCCCATCGAACCAGCAAGAGCGTGATGAGATCGCCGCTCACGCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCACCTCACTCTGGTGCCCTCCAAGCCGGACGAGTACCGCAAGCTCGGTTCCTTCGCCTT 323
                                                                                                                                                                                                                                                                                                                                                                              ACCGGTTATTGATGCTGGTGGTATTTTTGCTTATGCGAGGATGATGGGAATGATTCCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGTCTGTGAGGAGTGTAAGACAGGAGATACGGTGACGATCGAGCTGAGTGATAGTGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAAGTACTCAATCATAATCGGCGGCGAAAACTTTGGTTGCGGATCGTCACGTGAACATGC
Arabidopsis thaliana Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnollophyta; eudicotyledoms; core eudicots; Rosidae; eurosida I; Brassicales; Brassicaceae; Arabidopsis. 1 (bases 1 to 966)
1 (bases 1 to 966)
Yamada, K., Liu, S.X., Sakano, H., Pham, P.K., Banh, J., Chung, M.K.,
                                                                                                     AY063828.1 GI:173807 FLI_CDNA.
Arabidopsis thaliana
                                                                                                                                                                            Arabidopsis thaliana putative 3-isc subunit (At2943100) mRNA, complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity 61.,
73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               മ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SITSRGTSSPTIEPRAAASESDSNEALANTTFHGLCYVLKDNIDDQIIPAGAACTFP
SNQQERDEIAAHALSGLPDFHKTRFIEPGENRSKYSIIIGGENFGCGSSREHAPVCLG
AAGAKAIVAESYARIFFRNSVAIGEVFPLESEVRVCEECKTGDTVTIELSDSGGLLTN
HTTGKNYKLKSIGDAGPVIDAGGIFAYARMMGMIPSLA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="At2g43100"
219 c 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 197.8; DB 8
Pred. No. 1.1e-30;
D; Mismatches 222
                                                                                                                                                             966 bp mkna .....ative 3-isopropylmalate dehydratase complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12;
                                                                                                                                                                                                                   25-APR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       347
                                                                                                                                                                                                                                                                                                                                                                                                                                                   701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            287
```

```
JOURNAL REFERENCE
                                                                                                                   BASE CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                         Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                   COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                             3'UTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Yamada, K., Banh, J., Banno, F., Chang, E., Dale, J.M., Goldsmith, A.D., Lee, J.M., Onodera, C.S., Quach, H.L., Tang, C.C., Toriumi, M., Wu, H.C., Yamamura, Y., Yu, S., Bowser, L., Carninci, P., Chen, H., Cheuk, R., Hayashizaki, Y., Ishida, J., Jones, T., Kamiya, A., Lin, J., Karlin-Neumann, G., Kawai, J., Kim, C., Koesema, E., Lam, B., Lin, J., Meyers, M.C., Miranda, M., Narusaka, M., Nguyen, M., Palm, C.J., Sakurai, T., Satou, M., Seki, M., Shinn, P., Southwick, A., Shinnzaki, K., Davis, R.W., Ecker, J.R. and Theologis, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Goldsmith,A.D., Lee,J.M., Quach,H.L., Toriumi,M., Yu,G., Bowser,L. Carninci,P., Chen,H., Cheuk,R., Hayashizaki,Y., Ishida,J., Jones,T., Kamiya,A., Karlin.Neumann,G., Kawai,J., Kim,C., Lam,B., Lin,J., Miranda,M., Narusaka,M., Nguyen,M., Palm,C.J., Sakurai,T., Satou,M., Seki,M., Shinn,P., Southwick,A., Shinozaki,K., Davis,R.W., Ecker,J.R. and Theologis,A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The Salk, Stanford, PGEC (SSP) Consortium members carried out the sequencing and annotation of the RAFL cDNAs: Yamada,K., Banh,J., Banno,F., Chang,E., Dale,J.M., Goldsmith,A.D., Lee,J.M., Onodera,C.S., Quach,H.L., Tang,C.C., Toriumi,M., Wu,H.C., Yamamura,Y., Yu,G., Yu,S., Bowser,L., Chen,H., Cheuk,R., Jones,T., Karlin-Neumann,G., Kim,C., Koesema,E., Liam,B., Lin,J., Meyers,M.C., Miranda,M., Nguyen,M., Palm,C.J., Shinn,P., Southwick,A., Davis,R.W., Ecker,J.R. and Theologis,A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    collection and clustering of RAFL cDNAs (RAFL cDNAs) (RIEN Arabidopsis Full-Length cDNA'): Seki,M., Narusaka,M., Ishida,J. Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai,J., Hayashizaki,Y. and Shinozaki,K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Direct Submission
Submitted (19-NOY-2001) Plant Gene Expression Center, 800 Buchanan
Street, Albany, CA 94710, USA
RIKEN Genomic Sciences Center (GSC) members carried out the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Yamada,K. (SSP/PGEC) and Seki,M. (RIKEN GSC) contributed equally this work. Shinozaki,K. (RIKEN GSC) and Theologis,A. (SSP/PGEC) contributed equally to this work as PIs.

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (bases 1 to 966)
                                                                                                                                                   260
   Conservative
                                                                                                                                                                                                                                       /Protein_id="AAL36184.1"
//db_xref="G1:7380708"
//db_xref="G1:7380708"
/translation="MAYSLPTEPQALPCSSTKTSSSLATERSPELFINGSTSLLPSSI
/translation="MAYSLPTEPQALAUTTENGLCYVIKDNUTDQIIPAGAACTEP
SITSRGTSSPTIIPRAAASESDSNEALAUTTENGLCYVIKDNUTDQIIPAGAACTEP
SNQQEEDDIAAHALSGLPDFHKTRFIEPGENRSKYSIIIGGENGTGSSREHAPVCLG
AAGAKAIVAESYARIFERNSVATGEVEPLESEVRVCEECKTGDTVTIELSDSGGLLTN
HTTGKNYKLKSIGDAGPVIDAGGIFAYARMMGMIPSLA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="This clone is in a modified pBluescript vector (Lambda ZAP) as a XhoI/SstI insert. ecotype: Columbia"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="At2g43100"
15. .785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Arabidopsis thaliana"
/db_xref="taxon:3702"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /clone="RAFL06-82-K21 (R11883)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /chromosome="2"
                                                                                                                                                   /gene="At2g43100"
234 c 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="putative 3-isopropylmalate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /evidence=experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="At2g43100"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="At2g43100"
                            19.1%;
61.4%;
0;
Score 197.8; DB 8
Pred. No. 1.1e-30;
0; Mismatches 222
                                                                                                                                                   Ω
                                                                                                                                                          274
                                                             DB 8;
                                                                Length 966;
         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  dehydratase
      12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bowser, L.,
         Gaps
         ω
```

```
δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q_{\lambda}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                    ACCESSION
VERSION
                                                                                     RESULT 1:
AY060594
                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                        g
                                                                                                                                                                                      밁
          SOURCE
                        KEYWORDS
                                                               DEFINITION
                                                                         LOCUS
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      144 CATCCTCCCCGCGCCGCTGCTGCCGCGGCGGCAGCAGCTCGCCGTCGTCAGCCGTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                             419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       264
                                                                                                                                                                                                                                                                                                                                           539
                                                                                                                                                                                                                                                                                                                                                                   504
                                                                                                                                                                                                                                                                                                                                                                                            479
                                                                                                                                                                                                                                                                                                                                                                                                                     444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      384
                                                                                                                                        776
                                                                                                                                                                738
                                                                                                                                                                                         716
                                                                                                                                                                                                                 678
                                                                                                                                                                                                                                         656
                                                                                                                                                                                                                                                                 620
                                                                                                                                                                                                                                                                                           596
                                                                                                                                                                                                                                                                                                                   564
                                                                                                   11
                                                                                                                                                                                                                                                                                                                                                                                                                                          GCACCTCACTCTGGTGCCCTCCAAGCCGGACGAGTACCGCAAGCTCGGTTCCGCTT 323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCACGGCGAGTGCTTCGTGGTGGGCGACAATATCGACACCGACCAGATCATCCCCGCCGA 263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CATCCCACGTGCTGCCGCCTCAGAATCCGACTCTAACGAAGCCCTAGCCCAACACACATT
                                                                                                                                                                                                                                                                                                                                                                                                          GCCCGTCGCGCTTGGGGCCGCTGGCGCACGCGCCATTGTTGCSGAGGGCTACGCGCGCAT 503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTCTGGTCTACCA---GACTTCCACAAAACACGGTTCATTGAGCCAGGAGAGAACAGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGCGGGGCTCCCATCCGCGGCCTACCCGACGCGTTCGTCGCCTCCGGGTGAGGAGTCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGCCGCTTGCACCTTCCCATCGAACCAGCAAGAGCGTGATGAGATCGCCGCTCACGCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCCTGGAAGGAGTGCAAGACAGGGGATGTGGTCACCGTGGACCTTGCTAACTCCG----
                                                                                                                                                                                                                                                                                                                                        CTTTTTCCGTAACTCGGTTGCTACAGGAGAGGTGTTTCCGCTCGAG---TCAGAGGTTAG
                                                                                                                                                                                                                                                                                                                                                                                           TCCGGTCTGTCTTGGAGCAGCTGGAGCTAAAGCCATAGTTGCTGAGTCTTACGCAAGAAT
                                                                                                                                                                                       ACCGGTTATTGATGCTGGTGGTATTTTTGCTTATGCGAGGATGATGGGAATGATTCCATC
                                                                                                                                                                                                       CCCTGTAATTGAGGCGGGAGGGATCTTTGCCTACGCCCGGAAGACAGGAATGATTGCGTC
                                                                                                                                                                                                                                        TTTATTGACTAATCACACGACCGGTAAAAACTATAAGCTGAAGTCGATCGGTGATGCTGG
                                                                                                                                                                                                                                                                                         AGTCTGTGAGGAGTGTAAGACAGGAGATACGGTGACGATCGAGCTGAGTGATAGTGGTGG
                                                                                                                                                                                                                                                                                                                                                           CTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTACCCTCTGGAGCTCACGGACGTTGG
                                                                                                                                       ATTAGCT
                                                                                                                                                                GAAAGCT 744
                                                                                                                                                                                                                                                      --TTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATGCTGG
                                                           AYU6U594 1014 bp mRNA
Arabidopsis thaliana At2g43100/MFL8.4 mRNA,
Arabidopsis thaliana Arabidopsis thaliana
                         FLI_CDNA.
                                     AY060594.1
                                                  AY060594
                                      GI:16974632
                                                                   complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                                                                                                                                                                                                   478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                655
                                                                                                                                                                                                                                                                                                                                                  595
                                                                                                                                                                                                                                                                                                                                                                          563
                                                                                                                                                                                                                                                                                                                                                                                                   538
                                                                                                                                                                                                                     737
                                                                                                                                                                                                                                                715
                                                                                                                                                                                                                                                                        677
                                                                                                                                                                                                                                                                                                                         619
```

AV060594
AV060594
AV060594
AV060594
AV060594
Arabidopsis thaliana At2g43100/MFL8.4 mRNA, complete cds.
ACCESSION
AV060594
VERSION
AV060594

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3'UTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5'UTR
CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                     384
                                                                                                                                                                                                                                                                                   264
                                                                                                                                                                                                                                                                                                                                            249
                                                                                                                                                                                                                                                                                                                                                                                                                                                        189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 144
                                                                                                                                            CGCGGGGCTCCCATCCGCGGCCGACCCGACGCCGTTCGTCGCTCCGGGTGAGGAGTCCTC
                                                                                                                                                                                                                                                                             GCACCTCACTCTGGTGCCCTCCAAGCCGGACGAGTACCGCAAGCTCGGTTCCTTCGCCTT
                                                                                                                                                                                                                                                                                                                                                                 CCACGGCGAGTGCTTCGTGGTGGGCGACAATATCGACACCGACCAGATCATCCCCGCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                     CATCCCACGTGCTGCCGCCTCAGAATCCGACTCTAACGAAGCCCTAGCCAACACAACCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CATCGTCCCCGCGGCGCTGCTGCCGCGCGGCGGCAGCTCGCCGCTCGTCAGCCGTTTT
                                                     CCGCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGTGCGGTTCCTCTCGCGAGCACGC
                                                                                                              CTCTGGTCTACCA----GACTTCCACAAAACACGGTTCATTGAGCCAGGAGAGAACAGATC
                                                                                                                                                                                                                             AGCCGCTTGCACCTTCCCATCGAACCAGCAAGAGCGTGATGAGATCGCCGCTCACGCTCT
                                                                                                                                                                                                                                                                                                                                         CCACGGCCTCTGCTATGTCTTGAAAGACAACATAGACACCGACCAGATCATCCCAGCAGG
AAAGTACTCAATCATAATCGGCGGCGAAAAACTTTGGTTGCGGATCGTCACGTGAACATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The Salk, Stanford, PGEC (SSP) Consortium members carried out the sequencing and annotation of the RAFI CDNAS: Cheuk, R., Chen, H., Kim, C. J., Koesema, E., Meyers, M.C., Shinn, P., Banh, J. Bowser, L., Dale, J. M., Goldsmith, A. D., Jiang, P. X., Jones, T., Karlin-Neumann, G. Lam, B., Lee, J. M., Lin, J., Liu, S. X., Miranda, M., Nguyen, M., Onodera, C. S., Palm, C. J., Pham, P. K., Quach, H. L., Southwick, A., Tang, C. C., Toriumi, M., Yamada, K., Yamamura, Y., Yu, G., Yu, S., Davis, R. W., Theologis, A., and Ecker, J. R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RIKEN Genomic Sciences Center (GSC) members carried out the collection and clustering of RAFL CDNAs (RAFL CDNA: 'RIKEN Arabidopsis Full-Length cDNA'): Seki,M., Narusaka,M., Ishida,J., Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai,J., Hayashizaki,Y. and Shinozaki,K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cheuk, R. (SSP/Salk) and Seki, M. (RIKEN GSC) contributed equally this work. Shinozaki, K. (RIKEN GSC) and Ecker, J.R. (SSP/Salk) contributed equally to this work as PIs.

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Direct Submission

Direct Submission

Salk Institute Genomic Analysis Laboratory (SIGnAL), Plant Biology Laboratory, The Salk Institute for Biological Studies, 10010 N. Torrey Pines Road, La Jolla, CA 92037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Narusaka,M., Nguyen,M., Onodera,C.S., Palm,C.J., Pham,P.K., Quach,H.L., Sakurai,T., Satou,M., Seki,M., Southwick,A., Tang,C Toriumi,M., Yamada,K., Yamamura,Y., Yu,G., Yu,S., Shinozaki,K., Davis,R.W., Theologis,A. and Ecker,J.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation="MAYSLPTFPQALPCSSTKTSSSLATFRSPFLRFNGSTSLIPSSI
SITSRGTSSPTIIPRAAASESDSNEALANTTFHGLCYYLKDNIDTDQIIPAGAACTFP
SNQQERDEIAAHALSGLPDFHKTRFIEPGENRSKYSIIIGGENFGCGSSREHAPYCLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAGAKAIVAESYARIFFRNSVATGEVFPLESEVRVCEECKTGDTVTIELSDSGGLLTN
HTTGKNYKLKSIGDAGPVIDAGGIFAYARMMGMIPSLA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
/product="At2g43100/MFL8.4"
/protein_id="AAL31219.1"
/db_xref="GI:16974633"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="3-isopropylmalate dehydratase,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="ecotype: Columbia"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Arabidopsis thaliana"
/db_xref="taxon:3702"
/chromosome="2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone="RAFL09-87-A06(R21048)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .1014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 197.8; D
Pred. No. 1.1e-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           211 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 1014;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             small subunit"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             La Jolla, CA 92037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Tang, C.C.,
485
                                                                                                              425
                                                                                                                                                                                                                                                                                   323
                                                                                                                                                                                                                                                                                                                                         308
                                                                                                                                                                                                                                                                                                                                                                                               263
                                                                                                                                                                                                                                                                                                                                                                                                                                                     248
                                                                                                                                                                    383
                                                                                                                                                                                                                             368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ψ
```

ρy 밁 δÃ В Qy 밁 Qy

밁 QY В

sequencing and annotation of the RAFI cDNAs: Yamada, K. B Chang, C.H., Chang, E., Dale, J.M., Goldsmith, A.D., Lee, J.M. Onodera, C.S., Quach, H.L., Tang, C.C., Toriumi, M., Wu, H.C., Yamamura, Y., Yu, G., Yu, S., Bowser, L., Chen, H., Cheuk, R., Karlin-Neumann, G., Kim, C., Lam, B., Lin, J., Meyers, M.C., M

Meyers, M.C., Miranda, M.

Jones, T.,

Lee, J.M.,

Banh, J

the

Stanford, PGEC (SSP) Consortium members carried out

```
TITLE
JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        몽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AY065366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Snoor
                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTAGCT 789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      --TTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGCCTGGAAGGAGTGCAAGACAGGGGGATGTGGTCACCGTGGACCTTGCTAACTCCG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTACCCTCTGGAGCTCACGGACGTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCCGGTCTGTCTTGGAGCAGCTGGAGCTAAAGCCATAGTTGCTGAGTCTTACGCAAGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAAAGCT 744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGTCTGTGAGGAGTGTAAGACAGGAGATACGGTGACGATCGAGCTGAGTGATAGTGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTTTTTCCGTAACTCGGTTGCTACAGGAGAGGTGTTTCCGCTCGAG---TCAGAGGTTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCCGTCGCGCTTGGGGCCCCTGGCGCACGCGCCATTGTTGCSGAGGGCTACGCGCGCAT
Street, Albany, CA 94710, USA

RIKEN Genomic Sciences Center (GSC) members carried out the collection and clustering of RAFL cDNAs (RAFL cDNA: 'RIKEN Arabidopsis Full-Length cDNA'): Seki,M., Narusaka,M., Ishida,J., Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai,J., Hayashizaki,Y. and Shinozaki,K.
                                                                                                                                                                                          Yamada, K., Banh, J., Chang, C.H., Chang, E., Dale, J.M.,
Goldsmith, A.D., Lee, J.M., Onodera, C.S., Quach, H.L., Tang, C.C.,
Toriumi, M., Wu, H.C., Yamamura, Y., Yu, G., Yu, S., Bowser, L.,
Carninci, P., Chen, H., Cheuk, R., Hayashizaki, Y., Ishida, J.,
Jones, T., Kamiya, A., Karlin-Neumann, G., Kawai, J., Kin, C., Lam, B.,
Lin, J., Meyers, M.C., Miranda, M., Narusaka, M., Nguyen, M., Palm, C.J.,
Sakurai, T., Satou, M., Seki, M., Shinn, P., Southwick, A.,
Shinozaki, K., Davis, R.W., Ecker, J.R. and Theologis, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                              Goldsmith, A.D., Lee, J.M., Quach, H.L., Toriumi, M., Yu, G., Bowser, L. Carninci, P., Chen, H., Cheuk, R., Hayashizaki, Y., Ishida, J., Jones, T., Kamiya, A., Karlin-Neumann, G., Kawai, J., Kim, C., Lam, B., Lin, J., Miranda, M., Narusaka, M., Nguyen, M., Palm, C.J., Sakurai, T., Satou, M., Seki, M., Shinn, P., Southwick, A., Shinozaki, K., Davis, R.W., Ecker, J.R. and Theologis, A. Arabidopsis Full Length cDNA Clones
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AY065366 975 bp mRNA lines Arabidopsis thaliana putative 3-isopropylmalate small subunit (At3g58990) mRNA, complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                Submitted (04-DEC-2001) Plant Gene Expression Center, 800 Buchanan
                                                                                                                                                                          Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Yamada, K., Liu, S.X., Sakano, H., Pham, P.K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Arabidopsis thaliana.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (bases 1 to 975)
                                                                                                                                                                                                                                                                                                                                                                                                 (bases 1 to 975)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Banh, J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       dehydratase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Chung, M.K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PLN 26-APR-2002
dratase protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bowser, L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           662
```

linear PLN 07-APR-2000 clone F17J16.

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5'UTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              114 CCACTCACTAAAATGCCGCCGCGCGCTGGGTCCATCGTCCCCGCGGCCGCTGCTGCCGCGGC
             562
                                                                                                 502
                                                                                                                                                                                    442
                                                                                                                                                                                                                                414
                                                                                                                                                                                                                                                                              382
                                                                                                                                                                                                                                                                                                                          354
                                                                                                                                                                                                                                                                                                                                                                    325
                                                                                                                                                                                                                                                                                                                                                                                                             294
                                                                                                                                                                                                                                                                                                                                                                                                                                                         265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAAACCACTTACTTCCTCCTCCGCCACGATCATCACACGCGTCGCTGCATCATCCTCCGA 204
                                                                                                                                                                                                             CTTCGGGTGCGGTTCCTCTCGCGAGCACGCCCCGTCGCGCTTGGGGGCCGCTGGCGCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGGCAGCAGCTCGCCGTCAGCCGTTTTCCACGGCGAGTGCTTCGTGGTGGGCGACAA
             GATTTTCCCGTTGGA----ATCGGAGGTTAGGATTTGCGACGAGTGCAAAACAGGGGATGT
                                       GGTGTACCCTCTGGAGCTCACGGACGTTGGGGCCTGGAAGGAGGGCAAGACAGGGGATGT 593
                                                                                                 AGCTGTGGTGGCGGAATCGTACGCTAGGATCTTTTTCAGGAACTGTGTAGCTACAGGTGA
                                                                                                                                        CGCCATTGTTGCSGAGGGCTACGCGCGCATCTTTTTTCGCAACTCCGTGGCCACTGGAGA 533
                                                                                                                                                                                         TTTCGGTTGCGGATCTTCCCGCGAACACGCTCCAGTTTGTCTCGGCGCGCGGGGAGCTAA 501
                                                                                                                                                                                                                                                                              ACGTTTCGTTGTTCCAGGAGAGATGAAATCAAAGTACTCAGTCATCATCGGCGGCGATAA
                                                                                                                                                                                                                                                                                                                          GCCGTTCGTCGCTCCGGGTGAGGAGTCCTCCCGCTACGCCATCATTGTCGGCGGAGCCAA 413
                                                                                                                                                                                                                                                                                                                                                                    AGATCGCGAGAAACTCGGCTCTTTCGCGCTTAACGGCTTACCA---AAATTCTACAACGA 381
                                                                                                                                                                                                                                                                                                                                                                                                           CGAGTACCGCAAGCTCGGTTCCTTCGCCTTCGCGGGGCTCCCATCCGGGCCTACCCGAC 353
                                                                                                                                                                                                                                                                                                                                                                                                                                                            CATCGACACCGATCAAATAATCCCCGCCGAGTACGGCACTCTCATCCCTTCGATTCCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TATCGACACCGACCAGATCATCCCCGCCGAGCACCTCACTCTGGTGCCCTCCAAGCCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTCAGGCGAGTCAATAACCAGAGAGACTTTCCACGGCCTCTGCTTCGTCTTGAAAGACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Yamada,K. (SSP/PGEC) and Seki,M. (RIKEN GSC) contributed equally this work. Shinozaki,K. (RIKEN GSC) and Theologis,A. (SSP/PGEC) contributed equally to this work as PIs. Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Nguyen,M.,
Ecker,J.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /protein_id="aal18807.1"
/protein_id="aal18807.1"
/db_xref="01:17529162"
/db_xref="01:17529162"
/translation="marsooftenptlekslassnknsctlcpspflolksastlfnyk
/translation="marsooftenptlekslassnknsctlcpspflolksastlfnyk
pltsssatittrvaasssdsgesitretfhglcfvlkdnidtdoiipaeygfllpsip
pdreklgsfalnglpkrynerryvpgenkskysylligddnegcgssrehapvclgaag
akavvaesyariffrnyvatgeifpllesevricdeckfgdvytiehkedgssllinht
trkeyklkplgdagpvldaggifayarkagmipsa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ecotype: Columbia"
1. .975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Arabidopsis
/db_xref="taxon:3702"
/chromosome="3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  779. .y/5
/gene="At3g58990"
740 c 208 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product="putative 3-isopropylmalate dehydratase
small subunit"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="At3g58990"
17. .778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="This clone is in a modified pBluescript vector
(Lambda ZAP) as a XhoI/SstI insert.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /clone="RAFL06-69-M11 (R11661)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /evidence=experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="At3g58990"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="At3g58990"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Palm, C.J., Shinn and Theologis, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Shinn, P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 196.6;
Pred. No. 1.9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ed. No. 1.96
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Southwick, A., Davis, R.W.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1.9e-30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               235;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 975;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein
                                                                                                                                                                                                                                         473
                                                                                                                                                                                                                                                                                   441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      264
                                                                                                     561
                  618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ф
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Вp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATF17J16/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    594
                                           exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGAATACAAACTGAAACCGCTCGGTGATGCCGGTTCCGGTGGATCGACGCCGGTGGAATCTT 738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGTCAC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCTTATGCAAGAAAAGCCGGCATGATTCCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGCCTACGCCCGGAAGACAGGAATGATTGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis.

1 (bases 1 to 89517)

D'Angelo,M., Vezzi,A., Modesto,D., Pigazzi,M., Valle,G., Mayer,K.F.X., Quetier,F. and Mewes, H.W., Rudd,S., Lemcke,K., Mayer,K.F.X., Quetier,F. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (07-APR-2000) MIPS, at the Max-Planck-Institut fuer Biochemie, Am Klopferspitz 18a, D-82152 Martinsried, FRG, E-mai Lemcke@mips.biochem.mpg.de, mayer@mips.biochem.mpg.de Project Coordinator: Marcel Salanoubat and Francis Quetier, Groupement d'Interet Bublic, Centre National de Sequencage - GENOSCOPE; 2 Gaston Cremieux, BP191, 91006 Evry Cedex, France;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Arabidopsis thaliana DNA chromosome
AL163527
AL163527.1 GI:7529738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Arabidopsis thaliana Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2 (bases 1 to 89517)
EU Arabidopsis sequencing, project.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATF17J16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Information on performance of analysis and a more detailed annotation of this entry and other sequences of chromosomes and 5 can be viewed at: http://www.mips.biochem.mpg.de/proj.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Salanoubat, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 http://www.genoscope.cns.fr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished
                                                                                                                          /translation="MDRISSLSNDIISNIVSFLSAKDAAVASVLSKRWQNIYTIVPNL
EFDNTLENQGSLTDFLNGLLALPASTRIKNVSIKRRGRDGPNRDADLNRFLCNVLKRG
VLKLKLDIWVTLDGRYSILPVEVFTCKTLVELELGSILQIDLVPENALLFALLTLIIDA
VQFSDQSGCAFQKLLSSCPVLVELKHLNVQNEHWQWSRRVSSPTLEKLTMNHRYHFGN
TYYDMEGITFDTPSLTSLKYYDLPPKSYPTVNLDSLVEATISLTLPLHHAWTGKHARR
GDTVPSYTNLLKGLRNVETLALSSTDTVAAFYFSNEAIPVFENLHRLSIATEREFCWR
                                                                                                                                                                                                                                                                                                                                                                             complement(join(377. .748,827. .967,1124./gene="F17J16_10"
/note="similarity to several hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="F17J16_10"
complement(join(377. .748,827.
/gene="F17J16_10"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="taxon:3702"
/chromosome="3"
377. .2038
complement(377. .
/gene="F17J16_10"
/number=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="Arabidopsis
/variety="Columbia"
                                                                                                                                                                                                                                                                /product="putative protein"
/protein_id="CAB86924.1"
/db_xref="GI:7529739"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                              TNLLNLPRSSKCKTQFEFIPPRSSV"
                                                                                     SDYSFLESCLVKTVEISEYSGTKIELKHMKHFLEKLSCLELVKVFSHERDEEEHVQLR
                                                                                                          TLPYLLKKSPNLESLVIGGPLHYNYQLGDGYESEEIYSEDDDEEESESDDDEPICECL
                                                                                                                                                                                                                                                                                                                                                        Arabidopsis thaliana"
                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -CGTGGACCTTGCTAACTCCGTTTTTATTAACCACACCTCTGGCAA 644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .89517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       89517 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DNA
e 3,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .967,1124.
```

멍

δÃ

Ş В Q

Qγ 밁 Дb δÃ Вþ Qy В Qy Ър δÃ

proteins .2038))

. 2038))

.de/proj/thal/

E-mail:

rue

			CDS	gene	gene	exon	intron	exon	intron	exon	intron	exon	•		•				CDS	gene	gene	exon	intron	exon	intron
/codon_start=1 /product="putative protein" /protein_id="CAB86926.1"	Arabidopsis thaliana Contains EGF-like domain signatures AA367-379;Prokaryotic membrane lipoprotein lipid attachment site AA369-379"	8953. 9102,932910237)) /gene="F17J16_30" /note="similarity to several hypothetical proteins -	/gene="F17J16_30" complement(j5in(56015954,60856186,62646481, 65606832,59197108,72277242,76808140,85908850,	complement(join(56015954,60856186,62646481,65606832,69197108,72277242,76808140,85908850,89539102,932910237))	/number=4 5601. 10237 /dene="F]17J16 30"	/number=3 complement(4433. ,4538) /gene="F17J16_20"	/ Jumber 3 /number 3 complement(43374432) /gene="F17J16 20"	/number=2 (4034 . 4336) complement(4034 . 4336) /dene=mp17,116 20"	/number=2 complement(39564033) dene="pt7:116 20"	/number=1 complement(35403955) /depe="P17J16 20"	/number=1 /number=1 complement(34573539) /gene="F17J16_20"	complement(28903456) /gene="F17J16_20"	SASMYTSKTEBUDYBULBENLLBATEMQLIGMRIKTLTVBEYIDDTEDYVNIQLDNQRN ELIQLGLTLTIASBAIAAETLLASLFGMNIPCPLYSIHGVFGYFVWSVTALCIVLFMV TLGYARWKKLLGS°	EIALEVVCSFVDKSVAALETEAWPVLDELTKNVSTENLEYVRSLKSNLTRLLARVQKV RDELEHLLDDNEDMADLYLTRKWIQNQQTEAILAGTASNSIALPAHNTSNLHRLTSNR	QTSTPSSPPPPLPTHAGGSAVGATGKAKKKTGGARLWMREPBTGAMEVVECDKSTIIK RASVPARDLRILGPVFSHSSNILGKNFDLILFGLAREKAIVVNLEVIKAIVTAEEVLL LDPLRPEVLPFVERLKQOFPQRNONENALQASANVQSPLDPEAAEGLQSELPFEFQVL	/db_xref="GI:7529740" // /db_xref="GI:7529740" // /db_xref="GI:7529740" // /db_xref="MAEEGFIGIGESEEEAAEIGAFSYSHHQISDLRRRSSAVKDDSA	/codon_start=1 /product="putative protein" /protein id="camba6925.]"	<pre>/gene="F17J16_20" /note="similarity to mitochondrial RNA splicing protein MRS2 - Saccharomyces cerevisiae, PIR:S62064"</pre>	/gene="£1701b_20" complement(join(28903456,35403955,40344336, 44334538)	complement(join(28903456,35403955,40344336, 44334538))	7990. 4538 2890. 4538 /dene="F17J16 20"	/ Number - 2 Complement(1124 2038)	complement(9681123) /gene="F17J16_10"	<pre>complement(827967) /gene="F17J16_10" /number=2</pre>	complement(749826) /gene="F17J16_10" /number=1
Query Match Best Local Sir Matches 382;	exon	intron	exon	intron	exon	intron	exon	intron	exon	intron	exon		intron	exon	intron	exon	intron	exon							
ch 19.0%; Score 196.0; DB 8; Length 89517; 1 Similarity 60.3%; Pred. No. 5e-30; 382; Conservative 1; Mismatches 235; Indels 15; Gaps 3;	89539102) 16_30"	<pre>complement(88518952) /gene="F17J16_30" /pumber=8</pre>	complement(85908850) /gene="F17J16_30" /number-8	1t(8141 7J16_30"	<pre>complement(76808140) /gene="F17J16_30" /punber=7</pre>	complement(72437679) /gene="F17J16_30" /number=6	/number=6 complement(72277242) /gene="F17J16_30" /number=6	/ complement(71097226)	complement(69197108) complement(69197108) /gene="F17316_30"	<pre>complement(68336918) /gene="F17J16_30" /pumbar=4</pre>	complement(65606832) /gene="F17J16_30" /number=4	/gene="F17/16_30" /gene="F17/16_30" /number=3	/gene="F17J16_30" /number=3 complement 64826559)	/number=2 complement(62646481)	/number=2 complement(61876263) /gene="F17J16_30"	complement(60856186) /gene="F17J16_30"	complement(59556084) /genc="F17J16_30" /numbor=1	<pre>complement(56015954) /gene="F17J16_30" /number=1</pre>	MPVLGLLHYMTDKCGDACDCISREDKGRSLITSCPVKKLEIRGFRGTMKEMTMIKHFLV YFPCLKEMNIYVEEYDPTELRFPQVSKVIIQMMEEYNKLSSCNVQLLITDYLSEKWTA AGRIL"	SSAT I KLLS HGYVAEDY PLYMKALFEART NE I VERKQ I KRVRA NEDWIJODEVOV VLRFSNVVKLMNG I QNVQKLYLTADT I EVLSLCCESVPLFNNLKTLG I TSEEGRGWQA	UPTKHAALTSVLIKKSILIKKIVA VAREFORATOLISEELISEELISEELISEELISEELISEELISEELISE	FOR VECURAL TERLISORIAL VALHEATIVE GOVERNMENT AND	ISSPITALINGIRNVEIMNIOSPITTQAFSYFHEAIPVFKKLYHITTINNUTVIGETW EFLPFVIKKCPNIKTLVIDGPLHYNEDRPKSVCHCLSGYSELLSCPLEVLQITDYSGT	TILDEKED ICAGERES, EDVENDE EDVENDE SEDENCALE S	/db_xref="G1:7529741" /translation="MDRISNLPNEIICHIVSELSAKEAAFASILSKRWRNLFTIVIKL OFDDGYKNEGSIKDFVDGYLALPTSGRYRSGSLFGBREFDDTHYDDFNGGTGAILKRG

REFERENCE AUTHORS TITLE JOURNAL PUBMED REFERENCE AUTHORS	RESULT 14 AE012835/c LOCUS DEFINITION ACCESSION VERSION VERSION KEYMORDS SOURCE ORGANISM	Qy       645         Db       10854         Qy       705         Db       10794	Qy     414       bb     11091       Qy     474       bb     11031       Qy     534       bb     10971       Qy     594       bb     10914	Qy       114         Db       11388         Qy       174         Db       11328         Qy       234         Db       11268         Qy       294         Db       11208         Qy       354         Db       11151
l (bases 1 to 10029)  1 (bases 1 to 10029)  2 (bases 1 to 10029)	AE012835 AE012835 AE012835 AE012835 AE012835 AE006470 AE012835.1 GI:21646549 Chlorobium tepidum TLS Chlorobium tepidum TLS Bacteria; Chlorobi; Chlorobia; Chlorobiales; Chlorobiaceae;	GGAGTACAAGCTGAAACCAATTGGTGATGCTGGCCCTGTAATTGAGGCGGGAGGGA	CTTCGGGTGGGGTTCCTCTCGGGAGCACGCGCCCGCGCGCG	CCACTCACTAAAATGCCGCCGCGGGTGGGTCCATCGTCCCGGGGGCGGTGCTGCCGGGGC 173
gene	yene CDS	CDS	g <sub>g</sub>	TITLE JOURNAL REMARK FEATURES SOUR Gene
Φ	ne	ŭ	gene	LE RNAL RARK RES Source gene

CDS

family

```
/product="acetolactate synthase, large subunit"
/product="acetolactate synthase, large subunit"
/product="acetolactate synthase, large subunit"
/protein_id="AAM71860,1"
/db_xref="G1:21646556"
/translation="MHNNGEKLIGSEIFFECLRRENYEYIFGYPGGALLKYVETLHDV
ETDGYPSSLIGNDAFQEADIVGITPETHHNFLYKDYRELATTIRKAFYLATNGRPGF
VLYDMPKDYLNAECTEWPENVDIRGFKPIKCHANQVSKAAKMIAKAKRPLFYVGGG
VLYDMPKDYLNAECTEWPENVDIRGFKPIKCHANQVSKAAKMIAKAKRPLFYVGGG
VISAEASAELRKLAIDQOIPVTMTLQGLGAFPGDHPLSMGMLGMHGTYWANQAVSNCD
LLLAVGAREDDRYTGKVDTFATHAYKIHNDIDPTNVDKNIKVDLFVVGDSKOFLASLI
EAMPKSREDRSAWLAELEKWRKQCPLDYEIEPDSLKTEFVIDEVSRQTKGHAVVYTDV
GQHOMWTSQYYKFTEPRSIITSGGLGTMGFGLPSAIGAAFGVTDRPVLLFSCDGGLMM
NIGEMVTAVYNKLPIKFFLINSSYLGHVRQWGELFHGEKYTFTDLASSNDFDFVKVAEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement(4842..../gene="ilvC"
/note="identified k
pF01450"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /transl_table=11
/product="3-tsopropylmalate dehydrogenase"
/protein_id="aav1857.1"
/protein_id="aav1857.1"
/protein_id="aav1857.1"
/db_xref="GI:21646553"
/translation="mmxrivsIngGIGPEVVAGALDVLNAVAKKHGFEVSVEEHLFG
/ASYDWIGSMLTDETLEACKNCDAVLLGAVGGYKWENLPHDKKPEAALLKIRKELGLF
GASYDWIGSMLTDETLEACKNCDAVLLGAVGGYKWENLPHDKKPEAALLKIRKELGLF
RYEVERLARLAFFAFVYDALVASSTIKTEVVGGTDFMVFRELTGGIYFGQPRGYDETRGWNTMVYE
RYEVERLARLAFFAFVYUTSNLFGDILSDISGMITGSLGMLPSASIGSHALYEPH
VDNAAMQVVRNBRGFEYUTVSNLFGDILSDISGMITGSLGMLPSASIGSHALYEPH
GSAPDLAGQNKANPIATIASVAMMFENSFNRPEVAADIYAAIEGALAAGFRTGDIAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /translation="mniyreqdadlaviqokniailgygsqghahalnikdsgmnvcv
glktdsascakareaglkvdp"yaeavkwadi'willepodtoksydnelapniksgat
lafghgfnihykqivppadvnvimiapkspghlvkrtyteggkpvcliavhqdafgda
kaialawakgiiggtkagvietgsfkdetetdlegoavilggsaelikagfetilteagy
PAELAYFECMHELKLIVDLYYEGGLSRMNYSVSDTAEYGGMTRGPRVVTSAAKAEMKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="CT0615" complement(3775./gene="leuB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement(6367.
/gene="ilvB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement(6367./gene="ilvB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /translation="MKHLISVLVENKFGTLNRVAAMFSARGENLESISIGETEDPEIS
RMTIVTRGEDRIISQVLKQLNRLIDTIKVTDLTHQPHVERELLLLSLKLSKSTQHEIF
ELANVFKGKVVDIKQKSITIEFVGSPDKINTAIDLFRPFGIRELARSGAVAIHRGES"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="ilvN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement(5878./gene="ilvN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /transl_table=11
/product="ketol-acid reductoisomerase"
/protein_id="AAM/1858.1"
/db_xref="GI:21646554"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(4842.
/gene="ilvC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GEAISSTTEMTAAIVARI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="CT0618"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /transl_table=11
/product="acetolactate synthase,
/protein_id="AAM71859.1"
/db_xref="GI:21646555"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note-"identified
PF01842"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="CT0617"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="CT0616"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ILEEIQDGRFAKEFIDECNSGYKKMNELRESNRNHPIEVVGAKLRGMMSWLKKK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="identified
                                                                                                                                                                                                                                                                                                                                                                                                 /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="identified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .8088)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .6357)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .4833)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               by match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         by match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      by match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      by match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .5834)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8088)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6357)
                                                                                                                                                                                                                                                                                                                                       0.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ូ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PFAM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PFAM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PFAM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PFAM protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      small
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein family HMM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   subunit"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         family
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      family HMM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               family
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MMH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MMH
                        RESULT 15
AFAGBD/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ρ
                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                      Ωy
                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ω
                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORIGIN
      LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local S
Matches 328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                         1791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2268
                                                                                                                                                                                                                                                                                                                                                                         1851
                                                                                                                                                                                                  722
                                                                                                                                                                                                                                                                                                                                                                                                                            602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CAATTGGTGATGCTGGCCCTGTAATTGAGGCGGGAGGGATCTTTGCCTACGCCCGGAAGA 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGCCGAGCACCTGGTCTACAGCCTCTCCGATCCGGAAGAGGTGAAGATGTACGGCAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGCCGAGCACCTCACTCTGGTGCCCTCCAAGCCGGACGACTACCGCAAGCTCGGTTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCATCATACAAGGTAAAGCCTACGTTCTCGGCAAGAATATCGACACCGACCAGATCATTC
                                                                                                                                                                          CAGGAATGATTGCGTCGAAAGCTGC
                                                                                                                                                                                                                                                         CGCTGGGTGACGTGATCAATATTGTGCAGGCGGCGGCGCATCTTTGAATACGCAAGGAAAA
                                                                                                                                                                                                                                                                                                                                                                      TCGACATGGAGAACAACACGCTGACCAACCTCACGCAGAACATCACCTACGAGCTGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                         TGGACCTTGCTAACTCCGTTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCTTTGAG----ACGGCGCAGCCGCTCAACAAGTCGATCATGACCGGCGACGAGCTGTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTCTGGAGCTCACGGACGTTGGGGGCCTGGAAGGAGTGCAAGACAGGGGGATGTGGTCACCG 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCGCCGAATCCTACGCGAGGATTTTCTACCGCAACTGCGTGGACGGCGGTTTTGTTATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTGCSGAGGGCTACGCGCGCATCTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGGCTCGTCGAGAGCACGCGCCCCTTCGCGCTGAAGGTCGCCGGAGCCAAAGCGATCA 1969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGGTTCCTCTCGCGAGCACGCGCCCGTCGCGCCTTGGGGGCCGCTGGCGCCACGCGCCATTG 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCGAAGAGGGTGAGTTCACCTCGCCATACTCGATCATCGCCGGACCCAACTTCGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCGCTCCGGGTGAGGAGTCCTCCCGCTACGCCATCATTGTCGGCGGAGCCAACCTTCGGGT 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACGCGCTCTCCGGCGTTCCGATCGACCAGGCGGGACTTCCGGAAGGCAATATTCCGTTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCGCCTTCGCGGGGCTCCCATCCG - - - - - - - - - CGGCCTACCCGACGCCGTTCG
                                                                                                                                              ACAACCTCATGGCTTCGACTGAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      328;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="dihydroxy-acid dehydratase"
/product="dihydroxy-acid dehydratase"
/product="dia"*AAM71861.1"
/db_xref="G1:21646557"
/db_xref="G1:21646557"
/db_xref="G1:21646557"
/db_xref="G1:21646557"
/db_xref="G1:21646557"
/translation="mrSDTIKKGFEKAPHRSILIKATGCVSTRDDFSKPFIGICNSFNE
/translation="mrSDTIKKGFEKAPHRSILIKATGCVSTGAPKYSLASRELIADS
/trohahlOglikCIPNCDKITPGMMGALRTNVPVFVSGGPMKAGHTPSGKTVDL
ISVFEAVGKCSTGEITEDBELQTVEECGCPGCGSCSGNETANSNNCLCEALGFALPGNG
ISVFEAVGKCSTGEITEDBELQTVEECGCPGCGSCSGNETANLNAFALDLAMGGSTNTILH
ISVFEAVGKCSTGEITEDBELQTVEECGCPGCSCSGNETANLNAFALDLAMGGSTNTILH
ILAADPRRNELVKAAAGRIIDLVKKEVRPRQILTRYSMLVAFALDLAMGGSTNTILH
ILAADPRRNELVKAAAGRIIDLVKKEVRPRQILTRYSMLVAFALDLAMGGSTNTILH
ILAADPRRNELVKAAAGRIIDLVKKEVRPRQILTRYSMLVAFGGLAVLYGNLAMGAVV
EGILDLSARTVFCKTLGBNIASAEVLDRYVIRSVEBFYSTTGGLAVLYGNLAMGAVV
KTGAVSPAMMKHTGPAKVYDCQDDAIAGIMNGDVKSGDVVVIRVEGPRGGPGMPEMLS
PTSAIIGRCLGBSYALTPGGRESGGSRGACVGHVSPEAADRGISANQTGGMITIDIP
PROMINING DEFETIOLOTIAN TO THE TOTAL TO THE TOTAL 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ARSMTVALDDETIRQRIEALPKFEPKIKKGYLARYARMVTSANTGAVLKNDF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement(8161.
/gene="ilvD"
/note="CT0619"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement (8161.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="ilvD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="identified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 159.8; DB 1
Pred. No. 1.3e-22;
1; Mismatches 218
                                                                                                                                                                                                  746
                                                                                                                                              1707
      9830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                by match
dq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2286 t
      DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PFAM protein
```

Indels Length 10029;

18;

Gaps

2

2149

361

316 2209 256

2089

2029

gene

CDS

gene

CDS

gene

CDS

linear

BCT

07-MAR-1995

1732

1792 661 1852 1909

541

```
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          terminator
terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alcaligenes eutrophus 4-hydroxybutyrate dehydrogenase (gbd), ORF 2 and 4-10 genes, complete cds, and ORF3 and 11, 3' end.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Valentin, H.E., Zwingmann, G., Schonebaum, A. and Steinbuchel, A. Metabolic pathway for biosynthesis of poly(3-hydroxybutyrate-co-4-hydroxybutyrate) from 4-hydroxybutyrate by Alcaligenes eutrophus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4-hydroxybutyrate dehydrogenase; NAD-dependant; lipase Alcaligenes eutrophus (strain H16 SK4040) DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bacteria; Proteobacteria; beta subdivision; Ralstonia group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ralstonia eutropha
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           L36817.1 GI:695273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ralstonia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Biochem.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /protein_id="aac41421.1"
/db_xref="G1:695275"
/db_xref="G1:695275"
/db_xref="G1:695275"
/translation="mynthitggagficlolarililorgithilogopvaikrlitldvv
/translation="mynthitggagficlolarililorgyvenlegagaeapepcalgeruld
apogliddarvrvvtgdlisdpavlroladtotgavophiloadyvenlegill
asralletcreighoprvlttgssyavytggolippvyodsysysyabetipli
sdysrrgetvolgrilorgylkiptsynaassespagfiireplisgvaakopvabetipli
sdysrrgetvolgrilorgylkiptsynaassespagfiireplisgvaakopvabetipli
sdysrrgetvolgrilorgylkiptsynaassespagfiireplisgvaakopvabetipli
sdysrrgetvolgrilorgylkiptsynaassespagfiireplisgvaakopvabetipli
sdysrrgetvolgrilorgylkiptsynaassespagfiireplisgvaakopvabetipli
sdysrrgetvolgrilorgylkiptsynaassespagfiireplisgvaakopvabetipli
sdysrrgetvolgrilorgylkiptsynaassespagfiireplisgvaakopvabetipli
sdysrafielden som statisticken som stat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Ralstonia eutropha"
/strain="H16 SK4040"
/db_xref="taxon:510"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
1. .9830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GQAICKEVGAANLKVQFDCYHCQIVEGDVAMKLÄRDIAGIGHIQIAGVPERHEPDVGE
LNYPYLFEVMDTLGYDGWIGCEYRPRAGTSAGLGWLKPYLGR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transl_table=11
/protein_id="AAC41420.1"
/protein_id="AAC41420.1"
/db_xref="GI:695274"
/tanslation="MURFAANLSMMYNEHAFLDRFAAAAADGFRAVEFLFPYEHAAAE
/translation="MURFAANLSMMYNEHAFLDRFAAAAAADGFRALEYAGVIGNDRI
LRARLDANGLTQALFNAAPGDWAAGERGLAALPGREADFRGTTGRALEYAGVIGNDRI
                                                                                                                                    /transl_table=11
/protein_id="AAC41422.1"
/protein_id="AAC41422.1"
/db_xref="G1:695276"
/translation="MAKEDFRHSIPLRVRWAEVDPQSIVFNAHYLTYCDICVTEYWRA
LGIRYPEDVLHAHGVDIFVVKSTLEYHASARFDDELEIRGRMSRLGRSSMLFRVEMFR
                                                                                                                                                                                                                                                                                                                                                                                                              complement(2143. .2580)
/note="ORF6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HVMAGLIPADADRARCRATYLENLAFAANAAAAQGVTVLIEPINTRDMPGYFLNRQDD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /protein_id="AAC41419.1"
/db_xref="GI:703067"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=2
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="putative" complement(2131.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement(2076
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EREARVENIVGTWPAAWNAERALALGFQSDASFDEVIRAYMEDAGLAK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TPAKLVNR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="ORF3"
complement(2619. .2665)
                                                                                   GDEHLITGEIVYVCADPATQKSAAIPGPVREIIEGYEVVKPAG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="ORF5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            codon_start=1/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              note="ORF4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'note="
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene="ORF3"
                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              transl_table=11/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               translation="NSVGNLAGFVSPYMVGALKDMTQSTQLPMYVLSAILVVGAVLVW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                227 (1-2), 43-60 (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .2107)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .2155)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -35_signal
-10_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RBS
CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_signal
                                                               terminator
                                                                                                                                                        terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="gbd"
5120. .6268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="-43 region"
4864. .4860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /transl_table=11
/protein_id="AaC41423.1"
/protein_id="AaC41423.1"
/protein_id="AaC41423.1"
/db_xref="Gi:695277"
/translation="MQRRHFIARAGIAAATAALGLAAMPAQAQADKFPQRPIRLVIGY
/translation="MQRRHFIARAGIAAATAALGLAAMPAQAQADKFPQRPIRLVIGY
/translation="MQRRHFIARAGIAGATAALGLAAMPAQAQADKFPQRTILAQVAMP
/TAGGSTDIPFRVLADNASKILGQPVIVENKPGAGGVLFAQMMQSTAPDGYTLAQVAMP
/YRLPYTTKINMDPVKDLNYILLGQNGYSFGLVVPADSPIKTMQEYAFAYAARANPGKLTY
/YRLPYTTKINMDPVKDLNYILLGGNGSSMQALLGGHVMSVADTPAWAPYVE
GSPGSMTTLHLTMEELAMKQGVQFSHIPYKGNGSBMQALLGGHVMSVADTPAWAPYVE
GSPGSMTTHLTMEELAMKQGVQFSHIPYKGNGSBMQALLGGHVMSVADTPAWAPYVE
GSPGSMTTHLTMEELAMKQGVQFSTLKELGIGIYQTSPFGLVAPKGDPKIVQKHDAFK
QGKLRLLSTWGEKRSARFPSVPTLKELGIGIYQTSPFGLVAPKTDPKIVGKHDAFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PLDPQVAALLELIARAKRPPIHAMEPEDAKIAYEKSAPILDINPPVYMAEDLLAPAR DGHAIPLRLYTPREASWTEPIPLLVVEHGGGETVGSVDSHDPLCRLLGGADCWYLSV DGHAIPLRLYTPREASWTEPIPLLVVEHGGGETVGSVDSHOPLCRLLGGADCWYLSVE DYRLGPOWRFPTAANDAFDVLHWVFAEAGRLGADPARIAVGGDSAGGTLAAAQAVEAF NAGLAPVLQLLIYPGTGARQDTPSHRALADGYLLTADWIRWFFAQYLDQEASRDDWRF APLDGGGAGAEYRGTCPAWIAVAGYDPLHDEGVAYAEKLRAAGVAATLADYPGMIHDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(2675.
/note="putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="lipase-like enzyme"
/protein_id="AAC41424.1"
/protein_id="AAC41424.1"
/db_xref="G1:695278"
/translation="MSRCGRRAELLHAAGTGSGSASFPMSAAPSSSPDAPATPGLPSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(3691. .3696)
complement(3762. .4856)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KAMDMPNYRESLAKFDMEPYYMNSQQYAQFAAETVKKEKAIIEKLGLAKAQ"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement(2697.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product="NAD-dependent 4-hydroxybutyrate dehydrogenase"
/protein_id="AAC41425.1"
/db_xref="G1:695279"
/db_xref="G1:695279"
/tanslation="MAFIYYLTHIHLDFGAVSLLKSECERIGIRRPLLVTDKGVVAAG
/translation="MAFIYYLTHIHLDFGAVSLLKSECERIGIRRPLLVTDKGVVAAG
/translation="MAFIYYLTHIHLDFGAVSLLKSECERIGIRRPLLVAAGGGSSIDLKS"
/translation="MAFIYYLTHIHLDFGAVSLLKSECERIGIRRPLLVAAGGGSSIDLKS"
/translation="MAFIYYLTHIHLDFGAVSLLKSECERIGIRRPLLVAAGGGSSIDLKS"
/translation="MAFIYYLTHIHLDFGAVSLLKSECERIGIRRPLLVAAGGGSSIDLKS"
/translation="MAFIYYLTHIHLDFGAVSLLKSECERIGIRRPLLVAAGGGSSIDLKS"
/translation="MAFIYYLTHIHLDFGAVSLLKSECERIGIRRPLLVAAGGGSSIDLKS"
/translation="MAFIYYLTHIHLDFGAVSLLKSECERIGIRRPLLVAAGGGSSIDLKS"
/translation="MAFIYYLTHIHLDFGAVSLLKSECERIGIRRPLLVAAGGGSSIDLKS"
/translation="MAFIYYLTHIHLDFGAVSLLKSECERIGIRRPLLVAAGGGSSIDLKS"
/translation="MAFIYYLTHIHLDFGAVSLLKS"
/translation="MAFIYYLTHIHLDFGAVSLLKS"
/translation="MAFIYYLTHIHLDFGAVSLLKS"
/translation="MAFIYYLTHIHLDFGAVSLLKS"
/translation="MAFIYYLTHIHLDFGAVSLLKS"
/translation="MAFIYYLTHIHLDFGAVSLLKS"
/translation="MAFIYYLTHIHLDFGAVSLLKS"
/translation="MAFIYYLTHIHLDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LERGWGHIERATRDGQDRDARLNMMSASMQGAMAFQKGLGCVHSLSHPLGGLKIDGRT
GLHHGTLNAVVMPAVLRFNADAPTVVKDDRYARLRRAMHLPDGADIAQAVHDMTVRLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IAILATHEGELTTYATTEGGSARITDKAAPLIAVPTTSGTGSEVARGAIIILDDGRKL
GFHSWHLLPKSAVCDPELTLGLPAGLTAATGMDAIAHCIETFLAPAFNPPADGIALDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5120. .6268
/gene="gbd"
/EC_number="1.1.1.61"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement(4941.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FKLGRFVPAVAQAHAEAVAALRAAFGTPHN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
/trans1_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="ORF8"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="-24/-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    note="putative"
              complement(6870.
/note="putative"
                                                                                                                                                                                                                                            /codon_start=1
/transl_table=1
/transl_table=11
/protein_id="nA041426.1"
/protein_id="nA041426.1"
/protein_id="nA041426.1"
/db_xref="GI:695280"
/db_xref="GI:695280"
/translation="MSGEHLQVVHGDITRMEVDAIVNAANSGLLGGGGVDGAIHGAGG
/translation="MSGEHLQVVHGDITRMEVDAIVNAANSGLLGGGGVDGAIHGAGG
/translation="MSGEHLQVVHGDITRMEVDAIVNAANSGLLGGGGVDGAIHGAGG
SAIKEACAAIHDTGGGCFTGEAVITTGGHLPAPYVIHAVGFVWGGGDQGEDELLANAY
SAIKEACAAIHDTGGTGTGTTAFPRERAADIAIAAVREALAAAPEIEQVTFVCF
RNSIRLAAQHHLRRLAFPNISTGIYAFPRERAADIAIAAVREALAAAPEIEQVTFVCF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6345. .6866
/note="ORF2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="putative"
6335. .6339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="-24/-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LPTGLRQMGVTEDMFDKVIAGALVDHCHKTNPKEASAADYRRMLEQSM"
                                                                                                                                                                                                         DDENYRLYRERLS"
                                                                                                                 /note="putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12. .2706)
signal"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    l1. .4955)
| signal"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .3680)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 . 2722)
```

```
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 7.5%;
Best Local Similarity 52.9%;
Matches 164; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8985
8685
                                                                                                                                                                                    8805
                                                                                                                                                                                                                                                                                    8865
                                                                                                                                                                                                                                                                                                                                                                                 8925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RBS
CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      terminator
                                                                                                                                        461
                                                                                                                                                                                                                                     401
                                           521
                                                                                                                                                                                                                                                                                                                                                                                                                             281
                                                                                                                                                                                                                                                                                                                             341 CGGCCTACCCGACGCCGTTCGTCGCTCCGGGTGAGGAGTCCTCCCGCTACGCCATCATTG 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         221
                                                                                                                                                                                                                                                                                 GCAGCCCCGATCCCTTGTTCGTGCTGAACCAGCCGGAGTACACCGGGGCGTCGATCCTGC 8806
                                                                                                                                                                                                                                                                                                                                                                                                                             CCTCCAAGCCGGACGAGTACCGCAAGCTCGGTTCCTTCGCCTTCGCGGGGCTCCCATCCG 340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGCTGCGCATCAACATCGACACCGACGCCATCATCCCGTCGCGGGAAATGAAGCGCGTCT 8926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGTGGGCGACAATATCGACACCGACCAGATCATCCCCGCCGAGCACCTCACTCTGGTGC 280
                                                                                                                                                                                                                                                                                                                                                                                 TGGCCACTGG
                                                                                       AGTTCGGCATCCGCCATCGTTGCGCCCGGCTTCGGTGCCATCTTCCACAACAACTGCG
                                                                                                                                        CCGCTGGCGCACGCGCATTGTTGCSGAGGGCTACGCGCGCATCTTTTTCGCAACTCCG 520
                                                                                                                                                                                                                                   TCGGCGGAGCCAACTTCGGGTGCGGTTCCTCTCGCGAGCACGCGCCCCGTCGCGCTTGGGG
TGCGCAACGG 8676
                                                                                                                                                                                    TGGCCGGAAGCAATTTTGGCTGCGGGCTCCTCGCGCGAGCATGCGGTGTGGGGCGCTGAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /translation="MKKQLAGFALIGGFAQMACAQGSVTLYGVVDEGLTYNNNAGGHH
QFGLYSGYLGASREGLRGSEDLGGGMKALFVLENGFDASSGKLGQGGLIFGRQAYVGL
SGNYGTVTMGRQYDSVVDFVGPLNIGAQMGGFYNAHPGDIDMLNNSARVNNAIKFRSQ
NYGGLSFGGVYSLGGVAASPARNOIMSLGAGYGSGPLLLGIGYLWRNPNYSFYGTGV
TANTTGSAPLNTLTNIGSBYQSGYASARSQGYBAGAAAAXFGGATVGTTYSNTRFKDL
GDLSSGPNPFGYRGTATFNNVEYSFKYQVTPALLMGVAADAYARGSGINDASTRQFYLG
ADYSLSRRTDVYANAIYQKASGIDSTGKRAVAAINGVRPSADDSQAVLRVGLRHKF"
complement(8088. 8092)
complement(8089. 9025)
/note="0RF10"
                                              530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
/transl_table=11
/protein_id="Aac41429.1"
/protein_id="Aac41429.1"
/db_xref="GI:695283"
/translation="EFGGSAVRSLPVEARLTLCNLAVEFSAFSGIVAPDDTVFEYLAG
/translation="EFGGSAVRSLPVEARLTLCNLAVEFSAFSGIVAPDDTVFEYLAG
RPYAPAGAQWEPALWHWRSLYSDDAVFDRELSVDCRQLAPWVTWGTSPOHGVAVDGA
RPYAPAGAQWEPALWHWRSLYSDDLRFOGRMADIAIDAAFIGSCTNSRLSDLRSAGV
VPNPAMAIDADTRQAMERALSYMDLRFOGRMADIAIDAAFIGSCSMCFYAGGESFG
LAGRKVAPGVTAICVPYSSAVKRAAEAEGLDBVFREAGFEWRESGCSMCFYAGGESFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="MEDFTMHRGVAAPLLRINIDIDAIIPSREMKRVSRHGLAEGLFA
GWRYLAGTDRSEDPLEYUNQPEYTGASILLAGSNEGGGSSREHAVWALKEEGIRAIVA
PGEGAIFHNUCVRNGLLEVULPMATVQALADDCAAPATRGYTVDLRGLEVVSPAGAR
YGETLGSEQRQMLLEGLDPIALTLKLASSIDAFQGADRLRPWIHFDG"
complement(8416. .8448)
/note="putative"
complement(9027. .9830)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HRQRVISSTNRNFESRQGPQTRTHLAGPATVAASAVLGRIADPRRPPGA" complement(9032. .9036) 3352 c 3294 g 1574 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(6908.
/note="ORF9"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /protein_id="AAC41427.1"
/db_xref="GI:695281"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement(6901.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6901. .6927
/note="putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /partial
/note="ORF11"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /trans1_table=11
/protein_id="AAC41428.1"
/db_xref="GI:695282"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 77.6; DB 1;
pred. No. 1.4e-05;
1; Mismatches 145;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .8080)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .6927)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 9830;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                 8866
                                                                                            8686
                                                                                                                                                                                    8746
                                                                                                                                                                                                                                     460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
```

δÃ В Qy DЪ δÃ В Qγ DЬ Ş В δÃ

B

Search completed: April Job time : 3508 secs Ψ 2003, 04:00:08

•		
·		

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OM nucleic -
                                                                                                                                                                                                                                                                                           Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
        1032.6
961.2
462.2
291.2
210.8
210.8
209.2
209.2
196.6
                                                                                                                                                                                               Score
                                                                                                                                                                                                                                                                                                                                                                                                                   N_Geneseq_101002:*

1: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1980.DAT:*

2: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1981.DAT:*

3: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1982.DAT:*

4: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1983.DAT:*

4: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1983.DAT:*

5: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1985.DAT:*

5: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1985.DAT:*

7: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1986.DAT:*

8: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1989.DAT:*

9: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1989.DAT:*

10: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1989.DAT:*

11: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1993.DAT:*

12: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1993.DAT:*

13: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1993.DAT:*

14: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1993.DAT:*

15: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1993.DAT:*

16: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1995.DAT:*

17: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1995.DAT:*

18: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1999.DAT:*

19: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1999.DAT:*

19: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1999.DAT:*

19: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1999.DAT:*

20: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1999.DAT:*

21: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1999.DAT:*

22: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1990.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nucleic search, using sw model
                                                                                                                                                                                               Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IDENTITY_NUC Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                April 2, 2003, 22:55:49; Search time 284 Seconds (without alignments) 8191.247 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-027-450-46
1033
                                                                                                                                                            100.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2185239 seqs, 1125999159 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                 /SIDS2/gcgdata/geneseq/geneseqn-embl/NA2001A.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn-embl/NA2001B.DAT:*
/SIDS2/gcgdata/geneseq/geneseqn-embl/NA2002.DAT:*
                                                                                                                                                                                               Length DB
        1033
995
1112
1107
1107
945
945
948
948
829
                                                                                                                                                                                                 Ü
      AAX89462
AAX89463
AAX89463
AAX89464
AAC4722
AAC41152
AAC41152
ABN98576
ABN98932
AAAA70724
                                                                                                                                                                                                                                                        SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4370478
Corn leuD subunit
LeuD subunit of 3-
Rice leuD subunit of 3-
Arabidopsis thalia
Arabidopsis thalia
Arabidopsis thalia
Arabidopsis thalia
Arabidopsis thalia
                                                                                                                                                                                               Description
    α
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0 0
                                                                                                                                                                                                                                                                                                                                                                                                                                         Corn leuD subunit of 3-isopropylmalate dehydratase nucleotide sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAX89462;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAX89462 standard; cDNA; 1033 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15-FEB-2000 (first entry)
```

45	44	43	42	41	40	39	38	37	36	35	34	<b>ω</b> 3	32	31	30	29	28	27	26	25	24	23	22	21	20	19		17	16	15	14	13	12	11	10
54.2	54.4			54.6	٠	4.	55	5	5	5	<u>ر</u>	5	5	55.8	5	56	σ.	56.8	σ.	6.	56.8	57	57	57	57	57	57	57	57			7.	7.	63.6	ω ·
5.2	υ. ω	5.3	5. 3	5.3	5.3	ა ა	5. 3	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4						٠.	٠	٠							٠				6.2	
	w	S	5	556	556	769	372	1772	1291	612	255	465	464	435	404	612	378	2608	823	823	595	1881	1881	1875	1875	1875	1875	1472	1472	1466	1466	4037	387	297	217
24	23	23	23	23	23	21	23	19	21	22	22	24	23	23	23	22	22	21	22	22	22	24	24	24	24	19		24	24	24	24		22	22	22
AAI70851	ABV04399	ABV43601	ABV42105	ABV40163	ABV40063	AAA28122	ABV37528	AAV63174	AAA53975	AAH71471	AAH82121	AAD33054	ABV03810	ABV60921	ABV56394	AAH71471	AAI90863	AAC74241	AAL02457	ABA07664	AAS01171	AAI67856	AAI67855	ABK82339	ABK82338	AAV33017	AAV33033	AAI67826	AAI67825	ABK82309	ABK82308	AAI99683	AAI89088	AAS29114	AAS29037
rΛ				prostate	Human prostate exp	Arabidopsis thalia	Human prostate exp	from	~	Human cervical can	Rat differential t	Human secreted pro	prostate	prostate	prostate					Human ovarian and	rtilisati	D. immitis transgl		immit	immit	immit	a immit		æ		Dirofilaria immiti	Mycobacterium tube		encoding	cDNA encoding for

## ALIGNMENTS

Corn; soybean; wheat; rice; dihydroxyacid dehydratase; leuC; leuD; branched chain amino acid transferase; biosynthetic enzyme; antibody; (DUPO ) DU PONT DE NEMOURS & CO E 28-OCT-1997; 20-OCT-1998; 06-MAY-1999 W09921880-A2 Zea mays. 3-isopropylmalate dehydratase; ss. 97US-0063423 98WO-US22081. Location/Qualifiers 4..753 /\*tag= a /product= LeuD /note= "Subunit of 3-isopropylmalate dehydratase"

```
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                 рь
                                                                                                                                                                                                                                                                                                                                                                        QΥ
                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                      В
                                          멍
                                                                     δÃ
                                                                                                    망
                                                                                                                                Qy
                                                                                                                                                               В
                                                                                                                                                                                          Qy
                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local S
Matches 1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAX89462-X89465 are fragments of corn, soybean, wheat and rice leub subunit of 3-isopropylmalate dehydratase nucleotide sequences. Sequences AAX89442-X89465 are nucleic acid fragments that encode all or a substantial portion of dihydroxyacid dehydratase, a branched chain amino acid transferase, a leuC or a leub subunit of 3-isopropylmalate dehydratase from wheat, corn, soybean or rice. These enzymes are involved in biosynthesis and utilization of branched-chain amino acids. The nucleic acid sequences can be used to alter the level of expression of a branched chain amino acid biosynthetic enzyme, and to identify inhibitors of a branched chain amino acid biosynthetic enzyme, and to identify inhibitors of a branched chain amino acid biosynthetic enzyme. The encoded proteins may be used to prepare antibodies for detecting the proteins in situ in cells, or in the coll of the coll of the coll of the colls, or in the coll of the colls of the colls, or in the coll of the colls of the colls, or in the colls of the colls of the colls, or in the colls of the colls of the colls, or in the colls of the colls of the colls, or in the colls of the colls of the colls, or in the colls of the colls of the colls, or in the colls of the colls of the colls, or in the colls of the colls of the colls of the colls, or in the colls of the colls of the colls of the colls.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nucleic acid fragments enzymes -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Falco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 1033 BP; 221 A; 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                       481
                                                                                                                                                                421
                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                                                             181
              601
                                            541
                                                                         541
                                                                                                                                   481
                                                                                                                                                                                              421
                                                                                                                                                                                                                                                           361
                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1033;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGAGCTCCAACCAGCGCGTTTATCCGGCGCCTCCCAGCTCACCTGTCATCGCCTCCACTCA 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2000-022904/02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTAAAATGCCGCCGCGCTGGGTCCATCGTCCCCGCGGCCGCCTGCTGCCGCGGCGGCGGCAGC
                                                                                                                                                                                                                           CGCAAGCTCGGTTCCCTTCGCCGTGCGGGGCTCCCATCCGCGGCCTACCCGACGCCGTTC
                                                                                                                                                                                                                                                                                                                                                 ACCGACCAGATCATCCCCGCCGAGCACCTCACTCTGGTGCCCTCCAAGCCGGACGAGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                             ACCTCGCCGTCGTCAGCCGTTTTCCACGGCGAGTGCTTCGTGGTGGGCGACAATATCGAC
            GTGGACCTTGCTAACTCCGTTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAA
                                                          CCTCTGGAGCTCACGGACGTTGGGGCCTGGAAGGAGTGCAAGACAGGGGATGTGGTCACC
                                                                                                     GTTGCSGAGGGCTACGCGCGCATCTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTAC
                                                                                                                     GTTGCSGAGGGCTACGCGCGCATCTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTAC
                                                                                                                                                                TGCGGTTCCTCGCGAGCACGCGCCCGTCGCGCTTGGGGGCCGCTGGCGCACGCGCCATT
                                                                                                                                                                              TGCGGTTCCTCTCGCGAGCACGCGCCCGTCGCGCCTTGGGGGCCGCTGGCGCACGCGCCATT
                                                                                                                                                                                                                                                                                                                                                                                                             AGCTCGCCGTCGTCAGCCGTTTTCCACGGCGAGTGCTTCGTGGTGGGCGACAATATCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTAAAATGCCGCCGCGCGCGCTCCATCGTCCCCCGCGGCCGCTGCTGCCGCGGCGGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SC,
                                          CCTCTGGAGCTCACGGACGTTGGGGGCCTGGAAGGAGTGCCAAGACAGGGGGATGTGGTCACC
AAY28439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cell extracts.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Page 94-95; 102pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cahoon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hitz
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ŗ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   c;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 1032.6; DB 2
Pred. No. 2.8e-209;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     branched
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   282 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Kinney
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     230 T; 1 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ΑJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Rafalski JA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        amino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        acid biosynthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1033;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                        540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60
                                                                                                                                                                                                                                                                                                                          360
                                                                                                                                                                                                                                                                                                                                                                                     300
                                                                                                                                                                                                                                                                                                                                                                                                                                              240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             180
                                                                                                                                                                                                   480
                                                                                                                                                                                                                                 420
                                                                                                                                                                                                                                                                420
                                                                                                                                                                                                                                                                                              360
                                                                                                                                                                                                                                                                                                                                                       300
                                                                                                                                                                                                                                                                                                                                                                                                                  240
                   660
                                                 600
                                                                             600
                                                                                                            540
                                                                                                                                                                      480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
```

```
RESULT 2
AAX89465
AAX9465
AC AAX6
AC AAX6
AC COII
KW COII
KW COII
KW Drai
KW Drai
KW Jorai
KW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Corn; soybean; wheat; rice; dihydroxyacid dehydratase; branched chain amino acid transferase; biosynthetic en: 3-isopropylmalate dehydratase; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuD subunit of 3-isopropylmalate dehydratase nucleotide sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1021
                                                                         Nucleic
enzymes
                                                                                                                                                 WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Triticum aestivum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15-FEB-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAX89465;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAX89465 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        601
                                                                                                                                                                                                                                                                                                                                     06-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                          WO9921880-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   661
                                                                                                                                                                                      Falco
                                                                                                                                                                                                                       (DUPO ) DU
                                                                                                                                                                                                                                                            28-OCT-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        721
                                    Claim 17;
                                                                                                                                P-PSDB;
                                                                                                                                                                                                                                                                                                 20-OCT-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACAGGAATGATTGCGTCGAAAGCTGCTGCATGAGGGAAAGCTTATGCAGCCGAGCCTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTGGACCTTGCTAACTCCGTTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGGAGATGAAGAAGTAAGCTGGAGTTAGGACTAAGAGTTACTGCACCTACTTGATGTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGAGATGAAGAAGTAAGCTGGAGTTAAGGACTAAGAGTTACTGCACCTACTTGATGTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAAAAAAAAAA 1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ААААААААААА 1033
                                                                                                                                                   2000-022904/02
                                                                                                                                                                                    SC,
                                                                             acid fragments
                                                                                                                                  AAY28442
                                    Page 98;
                                                                                                                                                                                    Cahoon RE,
                                                                                                                                                                                                                           PONT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                              97US-0063423
                                                                                                                                                                                                                                                                                                   98WO-US22081
                                                                                                                                                                                                                           DE NEMOURS & CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
1..735
                                                                                                                                                                                                                                                                                                                                                                                                             /*tag= a
/product= LeuD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cDNA;
                                        102pp;
   fragments of
                                                                                                                                                                                        Hitz
                                                                                             encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                995
                                        English
                                                                                                                                                                                        ĄĎ,
                                                                                                                                                                                                                             Ħ
                                                                                               branched
                                                                                                                                                                                        Kinney
   soybean,
                                                                                                                                                                                        ΑJ,
                                                                                                  chain
                                                                                                                                                                                          Rafalski
                                                                                                  amino
         wheat and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   enzyme;
                                                                                                  acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      leuC;
           rice
                                                                                                  biosynthetic
           leuD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   960
```

AAX89462-X89465 are

corn,

```
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                         Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Sin
Matches 978;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     subunit of 3-isopropylmalate dehydratase nucleotide sequences. Sequences AAX89442-X89465 are nucleic acid fragments that encode all or a substantial portion of dihydroxyacid dehydratase, a branched chain amino acid transferase, a leuC or a leuD subunit of 3-isopropylmalate dehydratase from wheat, corn, soybean or rice. These enzymes are involved in biosynthesis and utilization of branched-chain amino acids. The nucleic acid sequences can be used to alter the level of expression of a branched chain amino acids. They can also be used to obtain a nucleic acid fragment encoding a branched chain amino acid biosynthetic enzyme, and to identify inhibitors of a branched chain amino acid biosynthetic enzyme. The encoded proteins may be used to prepare antibodies for detecting the proteins in situ in cells, or in vitro in cell extracts.
                                                                                   899
                                                                                                                                                                                                         626
                                                                                                                                                                                                                                               548
                                                                                                                                                                                                                                                                                                                                                                                                             428
                                                                                                                                                                                                                                                                                                                                                                                                                                                    446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        128
                                                                                                                                                                  809
                                                                                                                                                                                                                                                                                      566
                                                                                                                                                                                                                                                                                                                              488
                                                                                                                                                                                                                                                                                                                                                                     506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          26 CGGCGGTGTCCACGGCAGCGCTTCTAGCCCCAATCCGAGCTCCAACCAGCGCGTTTATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                      ACGGCGAGTGCTTCGTGGTGGGCGACAATATCGACACCGACCAGATCATCCCCGCCGAGGC
                                                                                                                                                                                      TTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATGCTGGCCCTGTAA
                                                                                                                                                                                                                                             CCTGGAAGGAGTGCAAGACAGGGGGATGTGGCTCACCGTTGGCTACCTCCGTTTTTA
                                                                                                                                                                                                                                                                                                                                               TTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTACCCTCTGGAGCTCACGGACGTTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGGGGCTCCCATCCGCGGCCTACCCGACGCCGTTCGTCCGCTCCGGGTGAGGAGTCCTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCGTCCCCCCGCGCCGCTGCTGCCGCGGCGGCAGCAGCTCGCCGTCGTCAGCCGTTTTTCC
                        CTGCATGAGGGAA----AGCTTATGCAGCCGAGCCTCTGCGGAGATGAAGAAGTAAGCT
                                                                                                       TTGAGGCGGGAGGGATCTTTGCCTACGCCCGGAAGACAGGAATGATTGCGTCGAAAGCTG
                                                                                                                                                                                                                                                                                  CCTGGAAGGAGTGCAAGACAGGGGATGTGGTCACCGTGGACCTTGCTAACTCCGTTTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGTGCGGTTCCTCTCGCGAGCACGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCTACGCCATCATTGTCGGCGAGCCAACTTCGGGTGCGGTTCCTCTCGCGAGCACGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCTCACTCTGGTGCCCTCCAAGCCGGACGACGACTACCGCAAGCTCGGTTCCTTCGCCTTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCTCACTCTGGTGCCCTCCAAGCCGGACGAGTACCGCAAGCTCGGTTCCTTCGCCTTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCGTCCCCGCGCCGCTGCTGCCGCCGGCGGCAGCTCGCCGTCGTCAGCCGTTTTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGGGCTCCCAGCTCACCTGTCATCGCCTCCACTCACTAAAATGCCGCCGCGCTGGGTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCGCTCCCAGCTCACCTGTCATCGCCTCCACTCACTAAAATGCCGCCGCGCGCTGGGTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGCGGTGTCCACGGCAGCGCTTCTAGCCCCCAATCCGAGCTCCAACCAGCGCGTTTATCC
CTGCATGAGGGAAAGATCAGCTTATGCAGCCGAGCCTCTGCGGAGATGAAGAAGTAAGCT
                                                                                                                                                              TTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATGCTGGCCCTGTAA
                                                                                                                                                                                                                                                                                                                            TTTTTCGCAACTCCGTGGGCACTGGAGAGGTGTACCCTCTGGAGCTCACGGACGTTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGGGCTCCCATCCGCGGCCTACCCGACGCCGTTCGTCGCTCCGGGTGAGGAGTCCTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ₿P;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    194 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    93.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    296 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 961.2;
Pred. No. 3.7e
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  G:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    T; 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                    625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    67
                                                                                                                                                              667
                                                                                                                                                                                                                                               607
                                                                                                                                                                                                                                                                                                                                                                                                        487
                                                                                                                                                                                                                                                                                                                                                                                                                                                  505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        187
787
                                                                                                                                                                                                                                                                                                                            547
                                                                                                                                                                                                                                                                                                                                                                   565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1;
```

ρy D. ğ γg,

ρy

Š

밁

Qy

δÃ 밁

δ В δõ В δÃ 밁 δÃ

밁

801

γ 밁 δõ В

B

```
RESULT 3
AAX894
AC AAX8
AC AAX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                AAX89462-X89465 are fragments of corn, soybean, wheat and rice leuD subunit of 3-isopropylmalate dehydratase nucleotide sequences. Sequences AAX89442-X89465 are nucleic acid fragments that encode all or a substantial portion of dihydroxyacid dehydratase, a branched chain amino acid transferase, a leuC or a leuD subunit of 3-isopropylmalate dehydratase from wheat, corn, soybean or rice. These enzymes are involved in biosynthesis and utilization of branched-chain amino acids. The nucleic acid sequences can be used to alter the level of expression of a branched chain amino acid biosynthetic enzyme in a host cell. They can also be used to obtain a nucleic acid fragment encoding a branched chain amino acid biosynthetic enzyme. The encoding a branched chain amino acid biosynthetic enzyme. The encoded proteins may be used to prepare antibodies for detecting the proteins in situ in cells, or in vitro in cell extracts.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Corn; soybean; wheat; rice; dihydr branched chain amino acid transfer 3-isopropylmalate dehydratase; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rice
                                                                                                                                                                                                                                                                                                                                                                                                                   Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P-PSDB; AAY28440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO9921880-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Oryza sativa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15-FEB-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAX89463;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAX89463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28-OCT-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20-ocr-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          06-may-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OGUDO)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                leuD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTGCTCTGTTGCCAAAAAAAAAAAAAAAAA 1008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000-022904/02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTGCTCTGTTGCCATCTAAAAAAAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGTTACTAGTACTTGTACAATTGTACTCCTGCCTGCTTACTGTTCTTATCTGTTTGAATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGGCCTACCGAAATTATGATGAATCAATCAATTTGGTCTTTGTCACAGATCGTTTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                   17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           )
DU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         acid fragments
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            standard; cDNA; 1112
                                                                                                                                                                                                                                                                                                                                                                                                                 Page 96; 102pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                subunit of 3-isopropylmalate dehydratase nucleotide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cahoon RE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PONT DE NEMOURS & CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  wheat; rice; dihydroxyac amino acid transferase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97US-0063423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98WO-US22081.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /*tag= a
/product= LeuD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hitz WD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Subunit of 3-isopropylmalate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     dihydroxyacid dehydratase; leuC;
ransferase; biosynthetic enzyme;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            branched
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              [7]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Kinney
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ĄJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Rafalski
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            amino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         dehydratase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         biosynthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           antibody;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         847
```

 $s_Q$ 

Sequence

1112

B₽;

223

Ą,

339 C;

322 G;

228 Ŧ;

0 other;

```
RESULT 4
AAX89464
ID AAX89464
XX AAX8
AC AAX8
AC AAX8
XX DT 15-F
XX LeuD
XX LeuD
XX Corn
KW Corn
KW bran
KW bran
XX XX
                                                                                                                                                                                                                                                                          рЬ
                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                          ρ
                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                       Qγ
                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QΥ
                                                                                                                                                                                  В
                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                              Ω
                                                                                                                                                                                                                                                                                              QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 570; Conserv
                    Corn; soybean; wheat; rice; dihydroxyacid dehydratase; leuC; leuD; branched chain amino acid transférase; biosynthetic enzyme; antibody;
                                                     LeuD subunit of
                                                                              15-FEB-2000
                                                                                                                           AAX89464 standard;
                                                                                                                                                                                                                                                                                                                        612
                                                                                                                                                                                                                                                                                                                                                                    552
                                                                                                                                                                                                                                                                                                                                                                                         498
                                                                                                                                                                                                                                                                                                                                                                                                                 492
                                                                                                                                                                                                                                                                                                                                                                                                                                      438
                                                                                                                                                                                                                                                                                                                                                                                                                                                             432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  252
                                                                                                                                                                                    792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGCGGTGTCCACGGCAGCGCTTCTAGCCCCAATCCGAGCTCCAACCAGCGCGTTTATCCG 86
                                                                                                                                                                                  CAAGTCTGC
                                                                                                                                                                                                                                         CCCTGTAATTGAGGCGGGAGGGATCTTTGCCTACGCCCGGAAGACAGGAATGATTGCGTC
                                                                                                                                                                                                                                                                                                                      CACTGGAGCCTGGAAGGAGTGCAAGACCGGGGATGTGGTCACGGTGGAACTTGATAATTG
                                                                                                                                                                                                                                                                                                                                                                                GCGCATCTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTACCCTCTGGAGCTCACGGA
                                                                                                                                                                                                                                                                                                                                                                                                                            GCACGCGCCCGTCGCGCTTGGGGCCCGCTGGCGCACGCCCCATTGTTGCSGAGGGCTACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTCCTCCCGCTACGCCATCATTGTCGGCGAGCCAACTTCGGGTGCGGTTCCTCTCGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAAAGCTGC 746
                                                                                                                                                                                                                                                                           CGTCATGATCAACCACACCACCGGCAAGCAGTACAAGCTGAAGCCTATCGGCGATGCCGG
                                                                                                                                                                                                                                                                                        CGTTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATGCTGG
                                                                                                                                                                                                                                                                                                                                              CGTTGGGGCCTGGAAGGAGTGCAAGACAGGGGGATGTGGTCACCGTGGACCTTGCTAACTC
                                                                                                                                                                                                                                                                                                                                                                   GCGCATCTTCTTCCGCAACTCCGTGGCCACCGGTGAGGTCTACCCGTTGGAGCTAGCGGA
                                                                                                                                                                                                                                                                                                                                                                                                               GACCACCCGCTACGCCGTCATCATCGGCGCGCCCAACTTCGGCTGCGGCTCCTCCCGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCCTTCGTCGGCCTCCCCCACCGCGGCCTACCCGACGCCGTTCGTCGCCCCCGGCGAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCCTTCGCGGGGCTCCCATCCGCGGCCTACCCGACGCCGTTCGTCGTCCGGGTGAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCCGAGCACCTCACTCTGGTGCCCTCCAAGCCGGACGAGTACCGCAAGCTCGGTTCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGTATTCCACGGCGAGTGCTTCGTCGTGGGGGGATAACATCGACACCGACCAGATCATCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GACCGCCGTGGTCGCCGCCTGCCGCTGCCGCGGGGGGGGACTCGACGTCGGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCGCAGCTGGGTCGCGGCTATCTGCCGGCCCGGCCCTGAAATGCCACCACAGTCGTCCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGCTCCCAGCTCACCTGTCATCGCCTCCACTCACTAAAATGCCGCCGCGCGCTGGGTCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCGGCGCGGTGACAGCAGTTCTGGCACCGTGTCCCACGCCCTCGAGGACGTTCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                             (first entry)
                                                                                                                                                                                  800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -GTCCCCGCGGCCGCTGCTGCCGCGGCGGGCAGCAGCAGCTCGCCGTCGTCAGC
                                                     3-isopropylmalate dehydratase nucleotide sequence.
                                                                                                                           cDNA; 1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              44.78; 78.28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 462.2; DB 2
Pred. No. 1.6e-88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches 149;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 146
                                                                                                                                                                                                                                                                                                                                                                                                                                      497
                                                                                                                                                                                                                                                                                                                                                                                                                                                            491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         131
                                                                                                                                                                                                                                                                           731
                                                                                                                                                                                                                                                                                                                        671
                                                                                                                                                                                                                                                                                                                                              617
                                                                                                                                                                                                                                                                                                                                                                    611
                                                                                                                                                                                                                                                                                                                                                                                         557
                                                                                                                                                                                                                                                                                                                                                                                                                 551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 311
                                                                                                                                                                                                                                                                                                                        밁
                  Qy
                                         Вр
                                                              δÃ
                                                                                        В
                                                                                                           Qy
                                                                                                                                     B
                                                                                                                                                       Qy
                                                                                                                                                                                В
                                                                                                                                                                                                     Ω
                                                                                                                                                                                                                               망
                                                                                                                                                                                                                                                 Qγ
468
                                            408
                                                                                                                                                                                                       172
                                                                                                                                                                                                                               171
                                                                                          351
                                                                                                               292
                                                                                                                                      291
                                                                                                                                                                                  231
                                                                                                                                                            232
         AACTTCGGGTGCGGTTCCTCTCGCGAGCACGCGCCCGTCGCGCTTGGGGCCCGCTGGCGCA 471
                                                                                                     GACGAGTACCGCAAGCTCGGTTCCTTCGCCTTCGCGGGGCTCCCATCCGCGGCCTACCCG
                                                                                                                                                                                                                              ACGCCGTTCGTCGCGGTGAGGAGTCCTCCCGCTACGCCATCATTGTCGGCGGAGCC 411
                                                                                                                                      AATATCGACACCGACCAGATCATTCCCGCCGAGTACCTCACCCTCGTCCCTTCCAAGCCC
                                                                                                                                                          AATATCGACACCGACCAGATCATCCCCGCCGAGCACCTCACTCTGGTGCCCTCCAAGCCG 291
                                                                                                                                                                                 TCCGCCGCGTCCGCTTCTCCGCCTCCTTCCACGGCCTCTGCTACGTCGTCGGCGAC
                                                                                                                                                                                                       GCGGGCAGCAGCTCGCCGTCGTCAGCCGTTTTCCACGGCGAGTGCTTCGTGGTGGGCGAC 231
AACTTCGGTTGCGGCTCCTCCCGCGAGCACGCCCCCGTCGCGCTGGGCGCCTCCGGCGCC
                                                                                          GACGAGTACGAGAAGCTCGGCTCCTACGCCCTCATCGGCCTCC---CCGCCACCTACGCC
```

407 351 350

2;

467

```
Query Match
Best Local (
                                                                                                               AAX89462-X89465 are fragments of corn, soybean, wheat and rice leuD subunit of 3-isopropylmalate debhydratase nucleotide sequences. Sequences AAX89442-X89465 are incleic acid fragments that encode all or a substantial portion of dihydroxyacid debydratase, a branched chain amino acid transferase, a leuC or a leuD subunit of 3-isopropylmalate dehydratase from wheat, corn, soybean or rice. These enzymes are involved in biosynthesis and utilization of branched-chain amino acids. The nucleic acid sequences can be used to alter the level of expression of a branched chain amino acid biosynthetic enzyme in a host cell. They can amino acid biosynthetic enzyme, and to identify inhibitors of a branched chain amino acid biosynthetic enzyme. The encoded proteins may be used to prepare antibodies for detecting the proteins in situ in cells, or in vitro in cell extracts.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28-OCT-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Glycine max.
                                                                                Sequence 1107
                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 17; Page 97; 102pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Falco SC, Cahoon RE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20-OCT-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     06-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO9921880-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (DUPO ) DU PONT DE NEMOURS & CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000-022904/02
430;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            acid fragments
                 Similarity
                                                                                B₽;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98WO-US22081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /*tag= a
/product= LeuD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers 6..797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /transl_except= (Pos:15..17,
/note= "Xaa = unknown"
                                                                                25%
vative
               28.2%;
68.7%;
                                                                             A; \343 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hitz WD,
                                                                                                                                                                                                                                                                                                                                                                                                                                English.
                 Score 291.2;
Pred. No. 2.0
                                                                             256 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            branched
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EI.
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Kinney
                                                                                257 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ĄJ,
                      .6e-52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            chain
                                     DB 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Rafalski JA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            amino
Indels
                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              acid
                                          1107;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              biosynthetic
6;
```

טאסאסאסאסאסססססססססססססססססססססססססססס	XAXHAR	ם פ ם פ	
THE COUT-2000 (first ent XX Arabidopsis thaliana DN XX Hybridisation assay; get KW Hristidisation; dentification; XX Hybridisation pathway; prom XX EP1033405-A2.  XX EP103405-A2.  XX EP1033405-A2.  XX EP1033405-A2.  XX EP1033405-A2.  XX EP1033405-A2.  XX EP103405-A2.  XX EP103405-A2.  XX EP103405-A2	RESULT 5 AAC47222 ID AAC47222 standard; XX AAC47222; AC AAC47222; XX	Oy 652 AAGCTCAAACC. Db 705 CGCTTGAAACC Qy 712 GCCCGGAAGAC. L                Db 765 GCCAGGAAAAC	$\alpha \alpha \alpha \alpha \alpha \alpha$
haliana DNA fragment SEQ ID NO: 53012.  assay; genetic mapping; gene expression control; ification; signal transduction pathway; hway; promoter; termination sequence; ss.  haliana.  2000EP-0301439.  99US-0123548 99US-0123548 99US-0126785 99US-0126786 99US-0126786 99US-0126786 99US-012684 99US-012684 99US-0130449 99US-0130449 99US-0130449 99US-0131449 99US-0132486 99US-0132486 99US-0132486 99US-0132486 99US-0132486 99US-0134276 99US-0134271 99US-0134271 99US-0134271 99US-0134421 99US-0134471 99US-0134471	1; DNA; 945 BP.	AAGCTGAAACCAATTGGTGATGCTGGCCCTGTAATTGAGGCGGGAGGATCTTTGCCTAC 7	
		711	531 587 591 644 651
טי ט	א פי א ק א א ק א א ק	קק אק אקק אקק אקק	ט ס ט ט ס ט ט ס ט ט ט ס ט ט ע ס ט ט ע ס ט ט ע ס ט ט ט ע ס ט ט ט ט
18 JUN 1999 21 JUN 1999 22 JUN 1999 23 JUN 1999 24 JUN 1999 26 JUN 1999 27 JUN 1999 28 JUN 1999 29 JUN 1999 20 JUN 1999 20 JUN 1999 21 JUN 1999 21 JUN 1999 22 JUN 1999 23 JUN 1999 26 JUN 1999 27 JUN 1999 28 JUN 1999 29 JUN 1999 20 JUN 1999 21 JUN 1999 21 JUN 1999 22 JUN 1999 23 JUN 1999 24 JUN 1999 25 JUN 1999 26 JUN 1999 27 JUN 1999 28 JUN 1999 29 JUN 1999 20 JUN 1999 21 JUN 1999 21 JUN 1999 22 JUN 1999 23 JUN 1999 23 JUN 1999 25 JUN 1999 27 JUN 1999 27 JUN 1999 28 JUN 1999 29 JUN 1999 27 JUN 1999 27 JUN 1999 28 JUN 1999 29 JUN 1999 27 JUN 1999 27 JUN 1999 28 JUN 1999 29 JUN 1999 29 JUN 1999 20 JUN 1999 20 JUN 1999 21 JUN 1999 22 JUN 1999 23 JUN 1999 23 JUN 1999 24 JUN 1999 25 JUN 1999 27 JUN 1999 27 JUN 1999 27 JUN 1999 27 JUN 1999 28 JUN 1999 27 JUN 1999 28 JUN 1999 29 JUN 1999 29 JUN 1999 20 JUN	6661 66661 66661 66661 66661	6661 6661 6661 6661 6661 6661	
990S-0139763 990S-0139817 990S-0139817 990S-01403763 990S-0140353 990S-0140823 990S-0141842 990S-0142803 990S-0142803 990S-0142803 990S-0142803 990S-0142803 990S-01442803 990S-0144005 990S-0144005 990S-0144331 990S-0144333 990S-0144333 990S-0144632 990S-0144534 990S-0144535 990S-0144535 990S-0144535 990S-0144535 990S-0145528	9US-01394 9US-01394 9US-01394 9US-01394 9US-01394	908-0139119 908-0139453 908-0139453 908-0139492 908-0139454 908-0139456	9US-0135124 9US-0135353 9US-0135621 9US-0136021 9US-0136021 9US-0137222 9US-0137528 9US-0137528 9US-0137528 9US-0137528 9US-0138047 9US-0138847

-S066 -S066 -S066 -S066

5-0146386. 5-0146388. 5-0146389. 5-0147038.

ω

```
AAC4115
AAC411
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ΩV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   рь
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PR
PR
PR
PR
                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local S
Matches 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28826
                                                                                                                                                     Hybridisation assay; genetic mapping; gene expression control; protein identification; signal transduction pathway; metabolic pathway; promoter; termination sequence; ss.
                  25-FEB-2000; 2000EP-0301439
                                                    06-SEP-2000
                                                                                       EP1033405-A2
                                                                                                                                                                                                                              Arabidopsis thaliana DNA fragment
                                                                                                                                                                                                                                                                17-0CT-2000
                                                                                                                                                                                                                                                                                                   AAC41152;
                                                                                                                                                                                                                                                                                                                                     AAC41152
                                                                                                                       Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                          r 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             202
                                                                                                                                                                                                                                                                                                                                                                                                                           772
                                                                                                                                                                                                                                                                                                                                                                                                                                                           736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity hes 362; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6-OCT-1999;
8-OCT-1999;
8-OCT-1999;
8-OCT-1999;
9-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTCCACGGCGAGTGCTTCGTGGTGGGCGACAATATCGACACCGACCAGATCATCCCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCGAAAGCTGCTGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCCCTGTAATTGAGGCGGGAGGGATCTTTGCCTACGCCCGGAAGACAGGAATGATTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----TTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCTCCGGTTTGTTTAGGAGCAGCGGGAGCTAAAGCAGTGGTGGCTCAGTCTTATGCTAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGCCCGTCGCGCTTGGGGGCCCTGGCGCACGCGCCATTGTTGCCGAGGGCCTACGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                             TCTGCTGCTTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGTATTTTGATCAATCATACGACTGGGAAAGAGTACAAGCTTAAGCCGATTGGTGATGCT
                                                                                                                                                                                                                                                                                                                                     standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99US-0161361.
99US-0161920.
99US-0161992.
99US-0161993.
99US-0162142.
                                                                                                                                                                                                                                                                                                                                     DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                             787
                                                                                                                                                                                                                                                                                                                                                                                                                                                             751
                                                                                                                                                                                                                                                                                                                                       945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 210.8; 1
Pred. No. 2.6e
0; Mismatches
                                                                                                                                                                                                                                                                                                                                       вР
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                SEQ
                                                                                                                                                                                                                                IJ
                                                                                                                                                                                                                                  NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6e-35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB
                                                                                                                                                                                                                                30843.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 945;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               261
```

02-AUG-1999
02-AUG-1999
02-AUG-1999
03-AUG-1999
04-AUG-1999
05-AUG-1999
06-AUG-1999
06-AUG-1999
09-AUG-1999
11-AUG-1999
11-AUG-1999
11-AUG-1999
11-AUG-1999
11-AUG-1999
11-AUG-1999
11-AUG-1999
12-AUG-1999
12-AUG-1999
13-AUG-1999
13-AUG

9908-0147204
9908-014716
9908-014716
9908-014716
9908-014716
9908-014716
9908-014716
9908-014871
9908-014884
9908-014896
9908-014972
9908-014972
9908-014972
9908-014972
9908-014972
9908-014972
9908-0151066
9908-0151066
9908-0151066
9908-0151066
9908-0151066
9908-0151066
9908-0151066
9908-0151066
9908-0151066
9908-0151066
9908-0151066
9908-0151066
9908-0151066
9908-0151066
9908-0151066
9908-0151066
9908-0151066
9908-0151066
9908-0151066
9908-0151066
9908-0151066
9908-0151066
9908-0151066
9908-0159331
9908-0159331
9908-0159331
9908-0159331
9908-0159331
9908-0159331
9908-0159331
9908-0159331
9908-0159331
9908-0159331
9908-0159331
9908-0159331
9908-0159331
9908-0159331
9908-016076
9908-016076
9908-016076
9908-016076
9908-016081
9908-016086

$\cdot$	
אַ די אַ אָר אָר אָר אָר אָר אָר אָר אָר אָר אַר אַר אַר אַר אַר אַר אַר אַר אַר אַ	אק א א א א א א א א א א א א א א א א א א
MAKAKAMAKAKAMAKAKAMAKAKAMAKAKAMAKAKAMAKAKAMAKAKAMAKAKAMAKAKAMAKAKAMAKAKAMAKAKAMAKAKAMAKAKAMAKAKAMAKAKAMAKAKAMAKAMAKAKAMAKAKAMAKAKAMAKAKAMAKAKAMAKAKAMAKAKAMAKAKAMAKAKAMAKAKAMAKAKAMAKAKAMAKAKAMAKAMAKAKAMA	25-FEB- 05-MAR- 09-MAR- 23-MAR- 25-MAR- 25-MAR- 29-MAR- 20-MAR- 20-APR- 116-APR- 116-APR- 116-APR- 119-APR- 21-APR- 23-APR- 23-APR- 23-APR- 23-APR- 23-APR- 23-APR- 23-APR- 30-APR- 30-APR- 30-APR- 30-APR- 30-APR- 30-APR-
ର ହାର ହାର ହାର ହାର ହାର ହାର ହାର ହାର ହାର ହା	711999 71199 7119 719 7
\$200,000,000,000,000,000,000,000,000,000	0-SD66
\$\\\01324863 \$\\\01324863 \$\\\0134256 \$\\\0134256 \$\\\0134256 \$\\\0134256 \$\\\0134256 \$\\\0134256 \$\\\0134256 \$\\\0134256 \$\\\013425	1121825 1123180 1125788 1125788 1126785 1127462 1127462 1127462 1128714 1128714 1128714 1129845 113047 1130891 1130891 1130489 1130489 1130484
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	טיטיטיטיטיטיטיטיטיטיטיטיטיטיטיטיטיט א א א א א א א א א א א א א א א א א א א
22-JUL 23-JUL 23-JUL 26-JUL 26-JUL 27	13 - Jul. 14 - Jul. 15 - Jul. 16 - Jul. 19 - Jul. 19 - Jul. 19 - Jul. 19 - Jul. 20 - Jul. 20 - Jul. 21 - Jul. 22 - Jul. 22 - Jul. 22 - Jul. 23 - Jul. 24 - Jul. 25 - Jul. 26 - Jul. 27 - Jul. 28 - Jul. 27 - Jul. 28 - Jul.
	19999999999999999999999999999999999999
9908-0145 9908-0145 9908-0145 9908-0145 9908-0145 9908-0145 9908-0145 9908-0146 9908-0147 9908-0147 9908-0147 9908-0147 9908-0147 9908-0147 9908-0147 9908-0147 9908-0147 9908-0147 9908-0147 9908-0147 9908-0147 9908-0148	- 20066
00112000000000000000000000000000000000	0143542 0144085 01144085 01144086 01144386 0114331 0114333 0114333 0114333 0114334 01144335 01144335 01144814 01148814 011480816

```
γQ
                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                        δŶ
                                                                                          QΥ
                                                                                                                    Бр
                                                                                                                                     δÃ
                                                                                                                                                             멍
                                                                                                                                                                              δã
                                                                                                                                                                                                      Ъ
                                                                                                                                                                                                                        ρy
                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                           밁
                                                   δÃ
                                                                          В
           Š
                                B
                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                 08-OCT-1999
13-OCT-1999
13-OCT-1999
13-OCT-1999
14-OCT-1999
14-OCT-1999
14-OCT-1999
14-OCT-1999
14-OCT-1999
14-OCT-1999
21-OCT-1999
21-OCT-1999
21-OCT-1999
21-OCT-1999
21-OCT-1999
21-OCT-1999
21-OCT-1999
21-OCT-1999
21-OCT-1999
22-OCT-1999
25-OCT-1999
25-OCT-1999
25-OCT-1999
26-OCT-1999
26-OCT-1999
28-OCT-1999
28-OCT-1999
28-OCT-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              04-OCT-1999;
05-OCT-1999;
06-OCT-1999;
07-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                         29-OCT-1999;
                                                                                                                                                                                                                                                                                                                                      238
                                                                                                                                                                                                                                                                                                                                                  202 TTCCACGGCGAGTGCTTCGTGGTGGGCGACAATATCGACACGCACCAGATCATCCCCGCC
                                                                                                                                                                                   442
                                                                                                                                                                                                        415
                                                                                                                                                                                                                                                   358
                                                                                                                                                                                                                                                                                             298
                                                                                                                                                                                                                                                                                                                 262
                                                                                                                      535
                                                                                                                                          502
                                                                                                                                                                475
                                                                                                                                                                                                                                                                       322
            676
                                                                           592
                                                                                                 562
                                                                                                                                                                                                                              382
                                                                                                                                                                                                                                                                                            GAGTTTCTCACTCTCGTCCCTTCGAATCCAGAGGAATACGAGAAACTCGGTTCTTACGCT
                                                                                                                                                                                                                                                                                                        GAGCACCTCACTCTGGTGCCCTCCAAGCCGGACGAGTACCGCAAGCTCGGTTCCTTCGCC
                                                                                                                                                                                                                                                                                                                                      TTAGTTGGTCTTCCA---GCTTCTTACAAGGAACGATTCGTTCAGCCAGGTGAGATGAAG
                                                                                                                                                                                  GCGCCCGTCGCGCTTGGGGCCCCTGGCGCACGCGCCATTGTTGCSGAGGGCTACGCGCGC
                                                                                                                                                                                                        ACGAAGTACTCAATCATTGGCGGTGAAAACTTTGGATGTGGATCGTCACGTGAACAT
                                                                                                                                                                                                                      TCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGTGCGGTTCCTCTCGCGAGCAC
                                                                                                                                                                                                                                                              TTCGCGGGGCTCCCATCCGGGCCTACCCGACGCCGTTCGTCGCTCCGGGTGAGGAGTCC
                                                                                       GGGGCCTGGAAGGAGTGCAAGACAGGGGATGTGGTCACCGTGGACCTTGCTAACTCCG--
                                                                                                                     ATCTTTTTCAGGAACTCTGTTGCTACTGGTGAGGTTTATCCTTTTGGATT---CTGAAGTT
                                                                                                                                 ATCTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTACCCTCTGGAGCTCACGGACGTT
GCCCCTGTAATTGAGGCGGGAGGGATCTTTGCCTACGCCCGGAAGACAGGAATGATTGCG
                                AGTATTTTGATCAATCATACGACTGGGAAAGAGTATAAGCTTAAGCCGATTGGTGATGCT
                                                                           AGGGTTTGTGATGAGTGTACAACTGGTGATGTTGCGACTGTTGAGTTGAGGGAAGGAGAT
                                                                                                                                                                GCTCCGGTTTGTTTAGGAGCAGCGGGAGCTAAAGCAGTGGTGGCTCAGTCTTATGCTAGA
                                                                                                                                                                                                                                                                                                                                                                             361;
                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                              TTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATGCT
                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99US-0158369.
99US-0159293.
99US-0159294.
99US-0159295.
99US-0159329.
99US-0159331.
99US-0159331.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-0157117.
99US-0157753.
99US-0157865.
99US-0158029.
                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0159638
99US-0159584
99US-0160741
99US-0160767
99US-0160776
99US-0160815
99US-0160815
99US-0160980
99US-0160981
99US-0160981
99US-0161404
99US-0161405
99US-0161405
99US-0161405
99US-0161350
99US-0161350
99US-0161350
99US-0161350
99US-0161350
99US-0161350
99US-0161350
99US-0161350
99US-0161350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99US-0158029
99US-0158232
                                                                                                                                                                                                                                                                                                                                                                                                                          99US-0162142
                                                                                                                                                                                                                                                                                                                                                                                         20.3%;
                                                                                                                                                                                                                                                                                                                                                                              Score 209.2; DB 21
Pred. No. 5.7e-35;
0; Mismatches 183;
                                                                                                                                                                                                                                                                                                                                                                                                      DB 21;
                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                        945;
                                                                                                                                                                                                                                                                                                                                                                                 12;
                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                         297
                                                                                                                                                                    534
                                                                                                                                                                                                             474
                                                                                                                                                                                                                                 441
                                                                                                                                                                                                                                                       414
                                                                                                                                                                                                                                                                           381
                                                                                                                                                                                                                                                                                                357
                                                                                                                                                                                                                                                                                                                     321
                                                                                                                                                                                                                                                                                                                                                              261
                                                         675
                                                                                651
                                                                                                    619
                                                                                                                         591
                                                                                                                                               561
                                                                                                                                                                                       501
```

```
RESULT 7
ABN98576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                          01-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                       ABN98576;
                                                                                                                                                                                                                                                                                                                                                                   disease; crop; thate
nutrition; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                     ABN98576
                                                                                                                                                                                                                                                                                               27-JAN-2000; 2000US-178472P
                                                                                                                                                                                                                                                                                                                                                    Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                  nutrition;
                                                                                                                                                                                                                                                                                                                                                                                            Arabidopsis
                                                                                                                         Garcia
Hurban
                                                                                                                                                                                                                                                       (PRIC/)
(RAIN/)
                                                                                                                                                                                                                                                                                                             26-JAN-2001; 2001US-0770445
                                                                                                                                                                                                                                                                                                                                       US2002023281-A1
                                                                                                                                                                                                                                                                                                                                                                               Arabidopsis thaliana; plant;
                                                                                New Arabidopsis thaliana nucleic acid for identifying homologous producing compositions that modulate the expression or function encoded protein, and mapping functional regions of protein
                                                                                                            WPI;
                                                                                                                                                                 (ALLE/)
                                                                                                                                                                                    (KRIC/)
                                                                                                                                                                                                  (HAAS/)
                                                                                                                                                                                                                                                                                   (GORL/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                712
                                                                                                                                              Gorlach J,
                                                                                                                                                                               (DAVI
                                                                                                                                                                                                                                                                      (HAMI/)
                                                                                                                                                                                                                                                                            (/YYYNA)
                                                                                                                                     Rameaka
                                                                                                                                                                                                                      (LEDF/)
                                                                                                                                                                                                                             MATH/)
                                                                                                                                                                                                                                          (RAME/)
                                                                                                                                                                                                                                                  /XXXDX
                                                                                                                                                          (HURB/)
                                                                                                                                                                                                                WOES/
                                                                                                                                                                                                                                    PAGE/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCGAAAGCTGCTGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGACCAGTGATTGATGCTGGTGGTATATTTGCTTATGCTAGGAAAGCTGGAATGATTCCA 771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCTGCTGCTTGAT
                                                                                                            2002-400781/43
                                                                                                                         P (2)
                                                                                                                                                                 HAAS W D.
GARCIA C A.
KRICKER M.
SLATER T.
DAVIS K R.
ALLEN K.
HOFFMAN N.
                                                                                                                                                                                                             MATHEW A V.
LEDFORD B L.
WOESSNER J P.
                                                                                                                                                                                                                                                      HAMILTON C 1
PRICE J L.
RAINES T M.
                                                                                                                                      JG,
                                                                                                                                                            HURBAN P.
                                                                                                                                                                                                                                          RAMEAKA J G
                                                                                                                                                                                                                                                  υY
                                                                                                                                                                                                                                                                             Ž
                                                                                                                                                                                                                                                                                   GORLACH
                                                                                                                                                                                                                                                                                                                                                                                                                                     standard;
                                                                                                                                                                                                                                    PAGE A.
                                                                                                                               An Y, Ha
Page A,
Kricker N
                                                                                                                                                                                                                                                                                                                                                                                             thaliana expressed
                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA;
                                                                                                                                              Hamilton CM,
                                                                                                                                ĭ
                                                                                                                                                                                                                                                                                                                                                                         cress;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    751
                                                                                                                                      Mathew AV,
                                                                                                                                                                                                                                                                                                                                                                                                                                      948
                                                                                                                                 Slater
                                                                                                                                                                                                                                                                                                                                                                                                                                       BP.
                                                                                                                                                                                                                                                                                                                                                                          tolerance
                                                                                                                                                                                                                                                                                                                                                                                 insecticide;
                                                                                                                                                                                                                                                                                                                                                                                             polynucleotide SEQ ID
                                                                                                                              Price JL, nu.
/, Ledford BL,
                                                                                                                                                                                                                                                                                                                                                                           factor;
                                                                                                                                                                                                                                                                                                                                                                                 fungicide;
                                                                                                                                               Raines TM,
                                                                                                                                  Woessner
Allen K,
                                                                                                                                                                                                                                                                                                                                                                            insect;
                                                                                                                                                                                                                                                                                                                                                                                   transgenic;
                                                                                                                                                                                                                                                                                                                                                                                               NO 344
                                                                                                                                                                                                                                                                                                                                                                            pathogen;
                                                                                                                                  Yu Y;
JP, Haa
Hoffman
                                                                                                                                          Haas WD;
                                                                                           of its
                                                                                                                                   z
                                                                                                                                                                                                                                                                                                                                                                                   stress;
```

The invention relates to an Arabidopsis thaliana nucleic acid (I) comprising a sequence capable of hybridising under stringent conditions to a sequence selected from any one of 999 sequences (ABN98233-ABN99231), given in the specification or its fragment. A polypeptide (II) encoded by (I), a transgenic plant (III) comprising an exogenous nucleic acid or a genetically modified cell (IV) comprising an exogenous nucleic acid, is useful for screening a candidate agent for its biological effect. (I) is useful in identifying homologous or related genes, in producing

in identifying homologo itions that modulate the

expression

or

function

producing of its enc

Claim

1;

SEQ ID NO 344; 49pp + Sequence Listing;

English

```
CC protein, mapping functional regions of the protein and in studying CC associated physiological pathways. (I) is also useful for the genetic CC manipulation of cells, particularly plant cells. (I) is also useful in CC screening assays of various plant strains to determine the strains that CC are best capable of withstanding a particular disease or environmental CC stress. (II) and (III) are useful for screening of biologically active CC agents, e.g. fungicides, insecticides, etc., for elucidating biochemical CC pathways. The screened agents are useful in improved methods of treating CC crops to prevent or treat disease. (II) are also useful in screening CC programs to identify agents that mimic or enhance the action of tolerance CC enhance their tolerance to environmental stress. (I) is also useful CC for enhancing or inhibiting production of a biosynthetic product in a CC plant. (III) is useful for identifying other mediators that may induce CC expression of proteins of interest, for establishing the extent to which CC any specific insect and/or pathogen is responsible for damage to a CC particular plant, for identifying other mediators that enhance or induce tolerance to environmental stress, for identifying factors involved in CC biosynthetic pathways of nutritional, commercial, or medicinal value and CC value. (IV) is useful in the study of genetic function and regulation, CC for alteration of the cellular metabolism and for screening compounds that may affect the biological function of the gene or gene products. CC Note: The sequence data for this pattent did not form part of the printed CC specification, but was obtained in electronic format directly from USPTO CC at sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 948
                                                                                                                                                                                                                                                                                                                                                                   547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   727
                                                                                                                                                                                                                                             607
                                                                                                                                                                                                                                                                                                                                                                                                                                  562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGTGCGGTTCCTCTCGCGAGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TICGCGGGGCTCCCATCCGGGCCTACCCGACGCCGTTCGTCGCTCCGGGTGAGGAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAGCACCTCACTCTGGTGCCCTCCAAGCCGGACGAGCTACCGCAAGCTCGGTTCCTTCGCC
                              TCGAAAGCTGCTGCAT 751
                                                                                                                 GGACCAGTGATTGATGCTGGTGGTATATTTGCTTATGCTAGGAAAGCTGGAATGATTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                               GGGGCCTGGAAGGAGTGCAAGACAGGGGGATGTGGTCACCGTGGACCTTGCTAACTCCG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATCTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTACCCTCTGGAGCTCACGGACGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCTCCGGTTTGTTTAGGAGCAGCGGGAGCTAAAGCAGTGGTGGCTCAGTCTTATGCTAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGCCCGTCGCGCTTGGGGCCCTGGCGCCACGCCCATTGTTGCSGAGGGCTACGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTAGTTGGTCTTCCA----GCTTCTTACAAGGAACGATTCGTTCAGCCAGGTGAGATGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAGTTTCTCACTCTCGTCCCTTCGAATCCAGAGGAATACGAGAAACTCGGTTCTTACGCT
TCTGCTGCTGCTTGAT 742
                                                                                                                                                                                 GGCCCTGTAATTGAGGCGGGAGGGATCTTTGCCTACGCCCGGAAGACAGGAATGATTGCG
                                                                                                                                                                                                                                          AGTATTTTGATCAATCATACGACTGGGAAAGAGTATAAGCCTAAGCCGATTGGTGATGCT
                                                                                                                                                                                                                                                                                                          ----TTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATGCT
                                                                                                                                                                                                                                                                                                                                                               AGGGTTTGTGATGAGTGTACAACTGGTGATGTTGCGACTGTTGAGGTTGAGGGAAGGAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATCTTTTTCAGGAACTCTGTTGCTACTGGTGAGGTTTATCCTTTTGGATT----CTGAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACGAAGTACTCAATCATTGGCGGTGAAAACTTTGGATGTGGATCGTCACGTGAACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BP; 245 A; 208 C; 208 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 209.2; DB 24; Length Pred. No. 5.7e-35; O; Mismatches 183; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           287 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   261
                                                                                                                                                                                                                                                                                                          675
                                                                                                                                                                                                                                                                                                                                                                   606
                                                                                                                                                                                                                                                                                                                                                                                                                               619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 381
                                                                                                                                                                                                                                          666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               \frac{\omega}{2}
```

.04

Š

밁 õ 밁 δõ 망 δã В Q 8

Ş

Qy Вb δõ 밁 δÃ 밁

밁

```
ABN98932
ID ABN98932
ID ABN98932
ID ABN98932
ID ABN98932
AC AJN99
AC AJN99
AC AJN99
AC AJN90

The invention relates to an Arabidopsis thaliana nucleic acid (I) C comprising a sequence capable of hybridising under stringent conditions CC to a sequence selected from any one of 999 sequences (ABN98231), CC given in the specification or its fragment. A polypeptide (II) encoded by (I), a transgenic plant (III) comprising an exogenous nucleic acid or a CC genetically modified cell (IV) comprising an exogenous nucleic acid, is CC useful for screening a candidate agent for its biological effect. (I) is CC useful in identifying homologous or related genes, in producing CC compositions that modulate the expression or function of its encoded protein, mapping functional regions of the protein and in studying a sasociated physiological pathways. (I) is also useful for the genetic CC manipulation of cells, particularly plant cells. (I) is also useful in correcting assays of various plant strains to determine the strains that CC are best capable of withstanding a particular disease or environmental CC stress. (II) and (III) are useful for screening of biologically active
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Arabidopsis thaliana; plant; insecticide; fungicide; transgenic; disease; crop; thale cress; tolerance factor; insect; pathogen:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ABN98932 standard; DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                       New Arabidopsis thaliana nucleic acid for identifying homologous genes, producing compositions that modulate the expression or function of its encoded protein, and mapping functional regions of protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gorlach J,
Rameaka JG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (MATH)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       27-JAN-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   26-JAN-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   nutrition;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ABN98932;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (KRIC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US2002023281-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (HURB/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (DAVI/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (WOES/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (PAGE/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (RAIN/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (PRIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (SLAT/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               [GARC/]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (LEDF/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RAME/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /AAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (HAMI/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (/YYYA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (GORL/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ALLE/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2002-400781/43
                                                                                                                                                                                                                                                                                                                                                                                                ۲,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         P;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HAAS W D.
GARCIA C A.
KRICKER M.
SLATER T.
DAVIS K R.
ALLEN K.
HOFFMAN N.
HURBAN P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PAGE A.

MATHEW A V.

LEDFORD B L.

WOESSNER J P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GORLACH J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RAMEAKA J G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RAINES T M.
YU Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRICE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HAMILTON C M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   crop;
                                                                                                                                                                                                                                                                                                                                                                                                SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              An Y, Ha
, Page A,
Kricker I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2001US-0770445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2000US-178472P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                ON GI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        thale
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hamilton CM, F
A, Mathew AV,
er M, Slater T,
                                                                                                                                                                                                                                                                                                                                                                                              700; 49pp + Sequence Listing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              expressed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 polynucleotide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Price JL, Raines T
Ledford BL, Woess
, Davis KR, Allen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Raines TM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Woessner Allen K,
                                                                                                                                                                                                                                                                                                                                                                                              English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        pathogen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Yu Y;
JP, Haa
Hoffman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Haas
fman N;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₩Đ;
```

```
cc agents, e.g. fungicides, insecticides, etc., for elucidating biochemical cc pathways. The screened agents are useful in improved methods of treating cc crops to prevent or treat disease. (II) are also useful in screening cc programs to identify agents that mimic or enhance the action of tolerance cc factors. Such agents are useful in improved methods of treating crops to cc enhance their tolerance to environmental stress. (I) is also useful cc for enhancing or inhibiting production of a biosynthetic product in a cc plant. (III) is useful for identifying other mediators that may induce cany specific insect and/or pathogen is responsible for damage to a cc particular plant, for identifying other mediators that enhance or induce comparitual plant, for identifying other mediators that enhance or induce consynthetic pathways of nutritional, commercial, or medicinal value and cc particular plant, for identifying other mediators that enhance or induce to incomparate to environmental stress, for identifying factors involved in cc particular plant, for identifying other mediators that enhance or induce crowled in comparate to the productions of nutritional, commercial, or medicinal value and cc value. (IV) is useful in the study of genetic function and regulation, cc for alteration of the cellular metabolism and for screening compounds that may affect the biological function of the gene or gene products.

Cc Note: The sequence data for this patent did not form part of the printed conscription of the printed conscription of the printed conscription of the printed conscription of the part of the printed conscription of the printed conscription of the part of the printed conscription.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ΟΥ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                      Qy
                                  δÃ
                                                                              밁
                                                                                                                   Qy
                                                                                                                                                                   밁
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    114 CCACTCACTAAAATGCCGCCGCGCGCGGCTCCATCGTCCCCGCGGCCGCTGCTGCCGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            211
                                                                                625
                                                                                                                                                                   565
                                                                                                                                                                                                            594
                                                                                                                                                                                                                                                     508
                                                                                                                                                                                                                                                                                                                                   448
                                                                                                                                                                                                                                                                                                                                                                             474
                                                                                                                                                                                                                                                                                                                                                                                                                      388
                                                                                                                                                                                                                                                                                                                                                                                                                                                               414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  294
685
                                         705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TICAGGCGAGTCAATAACCAGAGAGAGACTTTCCACGGCCTCTGCTTCGTCTTGAAAGACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CATCGACACCGATCAAATAATCCCCGCCGAGTACGGCACTCTCATCCCTTCGATTCCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAPACCACTTACTTCCTCCTCCGCCACGATCATCACACGCGTCGCTGCATCATCCTCCGA 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TATCGACACCGACCAGATCATCCCCGCCGAGCACCTCACTCTGGTGCCCTCCAAGCCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCGTTCGTCGCTCCGGGTGAGGAGTCCTCCCCGCTACGCCATCATTGTCGGCGGAGCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGAGTACCGCAAGCTCGGTTCCTTCGCCTTCGCGGGGCTCCCATCCGCGGCCTACCCGAC
                       TGCCTACGCCCGGAAGACAGGAATGATTGCGTC
                                                                                                                   GGTCAC-----CGTGGACCTTGCTAACTCCGTTTTATTAACCACACCTCTGGCAA
                                                                                                                                                                                                                                                     GATTTTCCCGTTGGA---ATCGGAGGTTAGGATTTGCGACGAGTGCAAAACAGGGGATGT
                                                                                                                                                                                                                                                                                              GGTGTACCCTCTGGAGCTCACGGACGTTGGGGCCTGGAAGGAGTGCAAGACAGGGGATGT
                                                                                                                                                                                                                                                                                                                                      AGCTGTGGTGGCGGAATCGTACGCTAGGATCTTTTTCAGGAACTGTGTAGCTACAGGTGA
                                                                                                                                                                                                                                                                                                                                                                           CGCCATTGTTGCSGAGGGCTACGCGCGCGCATCTTTTTTCGCAACTCCGTGGCCACTGGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                        ACGTTTCGTTGCTTCCAGGAGAGATGAAATCAAAGTACTCAGTCATCATCGGCGGCGATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGATCGCGAGAAACTCGGCTCTTTCGCGCTTAACGGCTTACCA---AAATTCTACAACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             382;
CGCTTATGCAAGAAAAGCCGGCATGATTCCTTC
                                                                                829 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                225 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             212 C; 182 G; 210 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 196.6; DB 2
Pred. No. 2.6e-32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches ·
    717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 24; Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               235;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                          447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                210
                                                                                                                                                                                                                644
                                                                                                                                                                                                                                                         564
                                                                                                                                                                                                                                                                                                                                                                                   533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                270
                                                                                                                                                                       624
                                                                                                                                                                                                                                                                                                                                          507
                                                                                      684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>ω</u>
```

RESULT

```
RESULT 10
AAS29037
ID AAS29
XX AAS29
XC AAS29
XC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                 QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 200
P-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Thermus thermophilus homoaconitase hydratase gene region.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAA70724 standard; DNA; 4347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This sequence represents the genomic DNA region from Thermus thermophilus which contains the coding regions for the L-lysine biosynthetic protein homoaconitase hydratase subunits I and II. The gene can be used for the generation an L-lysine-producing Thermus thermophilus strain for the production of L-lysine.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JP2000157276-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Thermus thermophilus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Genome;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAA70724;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        L-lysine biosynthetic system gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    24-NOV-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13-JUN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15-DEC-2000
                    Human; DNA-binding protein; histone; chromo domain protein; chromatin organisation modifier; Y-box binding protein; DNA organisation; gene transcription; malignant disease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 4347 BP; 680 A; 1423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (AJIN ) AJINOMOTO KK
                                                                                                                                                                                                                                                                            AAS29037 standard; cDNA;
                                                                                                                                                                                                                                                                                                                                                                                                        2037
  autoimmune disorder;
                                                                                                                         cDNA encoding
                                                                                                                                                                          21-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  374 AGGAGICCICCCGCIACGCCAICAITGICGGCGGAGCCAACIICGGGIGCGGIICCICIC 433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGGAGGTGCGCCCCGGGGACATCCTCGTCTTCGGGCGGAACGCGGGGCTCGGCTCCAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2000-485355/43
                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGACGTTGGGGCCTGGAAGGAGTGCAAGACAGGGGATGTGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACGCGCGCATCTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTACCCTCTGGAGCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGAGTACGCCCCGAGGCCCTGAAGCGCCTCGGCGTCCGGGCCATCATCGCCAAAAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACGCCCGCATCTTCTTCCGCAACCTGGTGAACCTGGGGATCGTCCCCTTTGAGTCGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                        AGGTGGTGGATGCGCTAGAGGACGGCGACGAGGTGGAGTTGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                L-lysine biosynthesis; homoaconitase hydratase; ds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAB15394, AAB15395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Page 10-12; 14pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                            (first entry)
                                                                                                                              for human DNA-binding protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98JP-0333132.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6.3%;
55.4%;
     rheumatic
                                                                                                                                                                                                                                                                                 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 65.2; DB 21;
Pred. No. 0.00025;
""smatches 99;
                                                                                                                                                                                                                                                                                    ВΡ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C; 1569 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of Thermus
       genetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      T;
                                                                                                                                   #8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           genus microbe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
       disease;
abnormality;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 4347;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1976
```

0,

X X X X X X X X X X X X X X X X X X X
Infectious disease; neurological disorder; gene therapy; proceedings; anti-HTV, anti rheumatic; anti microbial; cyClostaric; ss.  Homo sapiens.  W0200155162-All.  17-JAN-2001, 2001W0-US91195.  11-JAN-2001, 2000W5-013965.  11-JAN-2001, 2000W5-013965.  11-JAN-2001, 2000W5-013967.  11-JAN-2001, 2000W5-013967
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
21-SEP-2000 25-SEP-2000 26-SEP-2000 27-SEP-2000 27-SEP-2000 29-SEP-2000 29-SEP-2000 29-SEP-2000 29-SEP-2000 29-SEP-2000 29-SEP-2000 29-SEP-2000 29-SEP-2000 20-CCT-2000 20-CCT
2000US -0234274 2000US -02344998 2000US -0235444 2000US -0235444 2000US -0235444 2000US -0235484 2000US -0235636 2000US -023667 2000US -023667 2000US -0237039 2000US -0237039 2000US -0237039 2000US -0241186 2000US -0241186 2000US -0241186 2000US -0241186 2000US -0241186 2000US -0241186 2000US -0246677 2000US -024667 2000US -02467 2000US -024667 2000US -0251030 2000US -0251030

```
RESULT 11
AAS2914
ID AAS29
AC AAS29
AC AAS29
AC AAS29
AC CDNA
XX 21-NO
DT 21-NO
DE CDNA
XX Human
KW Chrom
KW Chrom
KW DNA o
KW Infec
KW infun
KW infun
KW infun
KW Cytos
XX
DS Homo
XX
PN WO20C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     proteins (AAUI8154 AAUI8281), and obnA and genomic sequences encoding for these proteins. DNA-binding proteins such as histones, chromo (chromatin organisation modifier) domain proteins, and y-box binding proteins may contribute to diseases resulting from aberrant DNA creening assays to identify antagonists and/or agonists are useful in screening assays to identify antagonists and/or agonists that may enhance or block activities mediated by DNA-binding proteins. Blockers of DNA-binding proteins may be useful in treating disorders (e.g. diabetes mellitus), rheumatic diseases (e.g. rheumatoid carthritis), genetic abnormalities (e.g. cystic fibrosis), infectious diseases (e.g. Hull) and neurological disorders (e.g. Alzheimer's Cdiseases). The polynucleotide sequences of the invention may also be used in gene therapy. AAS29030-AAS29157 represent cDNA sequences concoding for novel DNA-binding proteins. CC Mote: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at figure in the proposition of the printed specification, but was obtained in electronic format directly from WIPO at the proposition in the printed specification.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
Matches 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Nucleic acid molecules encoding human secreted chromosomal binding proteins, used in preventing, treating or ameliorating a disorder, e.g. Alzheimer's and Parkinson's diseases and cancers -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11-DEC-2000;
05-JAN-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The present invention relates to the isolation of novel DNA-binding proteins (AAU18154-AAU18281), and cDNA and genomic sequences encodi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Rosen CA, Barash SC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (HUMA-) HUMAN GENOME SCI INC
                                                                                                            Human; DNA-binding protein; histone; chromo domain protein; chromatin organisation modifier; Y-box binding protein; DNA organisation; gene transcription; malignant disease; autoimmune disorder; rheumatic disease; genetic abnormality; infectious disease; neurological disorder; gene therapy; immunomodulatory; anti-HIV; anti rheumatic; anti microbial;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 217
                                                                                                                                                                                                                                                                                                                                                                AAS29114 standard;
                                                                                              cytostatic; ss.
                                                                                                                                                                                                                                                                                        21-NOV-2001
                                                          Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           916
                                                                                                                                                                                                                                                                                                                                                                                                                                                              153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITITIGITACIAGIACITGIACAATIGIACCIGCIGCIGCIACIGITCIITAICIGITIG 975
                                                                                                                                                                                                                                                                                                                                                                                                                                                            h 6.2%;
Similarity 71.2%;
84; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQ ID No 18; 561pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2000US-0254097.
2001US-0259678.
                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BP; 93 A; 30 C;
                                                                                                                                                                                                                                                    for human DNA-binding protein #85.
                                                                                                                                                                                                                                                                                                                                                                cDNA; 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ruben SM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 63.6; DB 22;
Pred. No. 0.00027;
D; Mismatches 34;
                                                                                                                                                                                                                                                                                                                                                                  ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           36 G; 58 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     34; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
        14-AUG-2000;
114-AUG-2000;
118-AUG-2000;
122-AUG-2000;
22-AUG-2000;
23-AUG-2000;
23-AUG-2000;
23-AUG-2000;
21-SEP-2000;
21-SEP-2000;
25-SEP-2000;
26-SEP-2000;
26-SEP-2000;
27-SEP-2000;
21-SEP-2000;
22-SEP-2000;
23-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 30-JUN-2000;
07-JUL-2000;
07-JUL-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          07-JUN-2000;
28-JUN-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17-JAN-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            02-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14-AUG-2000;
14-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14-JUL-2000;
26-JUL-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19-MAY-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18-APR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14-AUG-2000;
                            2000US-022515
2000US-02054847
2000US-0216847
2000US-0216847
2000US-0216847
2000US-0216847
2000US-0216847
2000US-0216847
2000US-021963
2000US-0224519
2000US-0225214
2000US-0225214
2000US-0225266
2000US-0225267
2000US-0225277
2000US-0225757
2000US-0225757
2000US-022575
2000US-023043
2000US-023043
2000US-023043
2000US-0231244
2000US-0231244
2000US-0231244
2000US-0231240
2000US-0231249
2000US-0231249
2000US-0231249
2000US-0231283
2000US-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2001WO-US01305
```

```
29-SEP-2000
29-SEP-2000
29-SEP-2000
20-CCT-2000
20-CCT
WPI; 2001-465557/50
                                                                                   Rosen CA,
                                                                                                                                                                                                                                                              -2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
-2000
                                                                                                                                                                      HUMAN
                                                                                   Barash SC,
                                                                                                                                                                                                                                                     2000US -0236368
2000US -0236802
2000US -0236802
2000US -02376802
2000US -0237039
2000US -0237039
2000US -0237039
2000US -0237039
2000US -0231935
2000US -02311785
2000US -02411785
2000US -02411808
2000US -02411808
2000US -0246476
2000US -0246476
2000US -0246476
2000US -0246476
2000US -0246476
2000US -0246676
2000US -0246610
2000US -0246525
2000US -0246611
2000US -0249211
2000US -0
                                                                                                                                                                      GENOME
                                                                                                                                                                      SCI
                                                                                   Ruben SM;
```

```
The present invention relates to the isolation of novel DNA-binding proteins (AAU18154-AAU18281), and cDNA and genomic sequences encoding for these proteins. DNA-binding proteins such as histones, chromo (chromatin organisation modifier) domain proteins, and Y-box binding proteins may contribute to diseases resulting from aberrant DNA crystalian and/or gene transcription. The sequences of the invention are useful in screening assays to identify antagonists and/or agonists that may enhance or block activities mediated by DNA-binding proteins. Blockers of DNA-binding proteins may be useful in treating disorders such as malignant diseases (e.g. cancer), autoimmune disorders (e.g. diabetes mellitus), rheumatic diseases (e.g. rheumatoid arthritis), genetic abnormalities (e.g. cystic fibrosis), infectious diseases (e.g. HIV) and neurological disorders (e.g. Alzheimer's disease). The polynucleotide sequences of the invention may also be used in gene therapy. AAS29030-AAS29157 represent cDNA sequences on over DNA-binding proteins.

Note: The sequence data for this patent did not form part of the printed at first transcription of the sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nucleic acid molecules encoding human secreted chromosomal binding proteins, used in preventing, treating or ameliorating a disorder, e.g. Alzheimer's and Parkinson's diseases and cancers -
Sequence 297 BP; 129 A; 47 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            P-PSDB; AAU18238
                                                 ftp.wipo.int/pub/published_pct_sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4; SEQ ID No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    95; 561pp; English.
  51 G; 68 T; 2 other;
                                                                             part of the printed
directly from WIPO
                                                                                                      printed
```

Qy 밁 δÃ 뮰 Query Match Best Local S Matches 84 AAI89088 standard; cDNA; 387 208 976 148 916 84; Similarity Conservative 6.2%; 0; ВP Score 63.6; DB 22 Pred. No. 0.00029; Pred. No. 0.0
); Mismatches 34; Indels 0; Gaps

DB 22;

Length

297;

0;

AAI89088;

06-NOV-2001 (first entry)

Human polynucleotide SEQ ID NO 9148.

Human; cytokine; cell proliferation; cell differentiation; gene th vaccine; peptide therapy; stem cell growth factor; haematopoiesis; tissue growth factor; immunomodulatory; cancer; leukaemia; nervous system disorders; gene therapy;

Homo sapiens.

WO200164835-A2

26-FEB-2001; 2001WO-US04927.

28-FEB-2000; 2000US-0515126 18-MAY-2000; 2000US-0577409

(HYSE-) HYSEQ INC

Tang YT, Liu C, Drmanac RT;

Claim

4;

SEQ ID

Ö 2;

3pp +

Sequence Listing; English.

```
RESULT 13
AA199683/c
ID AA1996
XX AA1996
XX AA1996
XX Mycoba
XX Mycoba
XX Mycoba
XX Mycoba
XX Mycoba
XX Mycoba
XX Wycoba
XX US6294
XX Wycoba
XX Mycoba
XX Mycoba
XX Mycoba
XX Fleisc
XX Mycoba
XX Fleisc
XX Fleisc
XX GENO-
PH 24-JUN
XX GENO-
PH 24-JU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cytokine, cell proliferation or cell differentiation or which may induce production of other cytokines in other cell populations. The polynucleotides and polypeptides are useful in gene therapy, vaccines or peptide therapy. The polypeptides have various cytokine-like activities, e.g. stem cell growth factor activity, haematopoiesis regulating activity, tissue growth factor activity, immunomodulatory activity and activity, in activity activity and activity, in activity activity and may be useful in the diagnosis and/or inflamment of cancer, leukaemia, nervous system disorders, arthritis and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 200
P-PSDB;
                            Evaluating strain variation of Mycobacterium tuberculosis, comprises determining the nucleotide sequence of the strain at positions in the genome corresponding to positions where M. tuberculosis strains CDC 1551 and H37Rv differ
                                                                                                                                                                                                                     Fleischmann RD,
                                                                                                                                                                                                                                                                                                                                                                                    24-JUN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                           25-SEP-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US6294328-B1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mycobacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mycobacterium tuberculosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mycobacterium tuberculosis strain H37Rv genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAI99683;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAI99683 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Note: The sequence data for this patent did not specification, but was obtained in electronic for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 1; SEQ ID NO 9148; 1399pp + Sequence Listing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         diagnosing and treating e.g.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Isolated nucleic acids and polypeptides, useful for preventing diagnosing and treating e.g. leukaemia, inflammation and immune
                                                                                                                                                                                                                                                                         (GENO-) INST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    variation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15-JAN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    inflammation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         922 GTTACTAGTACTTGTACAATTGTACTCCTGCCTGCTACTGTTCTTATCTGTTTGAATAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          invention relates to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2001-514838/56
DB; AAO09157.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     rum tuberculosis; strain H37Rv; strain CDC
epidemiology; patient treatment; epidemic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             on relates to human polynucleotides (AAT79941-AAT93841) proteins (AAO00010-AAO13910) that exhibit activity elai
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                         GENOMIC RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BP; 127 A; 65 C; 63 G; 119 T; 13 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tuberculosis
                                                                                                                                                                                                                                                                                                                             98US-0103840
                                                                                                                                                                                                                                                                                                                                                                                    98US-0103840
                                                                                                                                                                                                                     White OR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4403765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                     Fraser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 57.6; DB:
Pred. No. 0.0057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                     ČM,
                                                                                                                                                                                                                     Venter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 epidemic monitoring;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       34; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of form part of the printed format directly from WIPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1551;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           genome;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                elating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
```

٩

```
RESULT 14
ABK82308
ID ABK82308
AC ABK82
AC ABK82
XX 27-AL
DT 27-AL
XX Nemat
KW Nemat
KW Brugd
OS Dirof
XX Dirof
XX US631
XX US631
XX O7-M2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                β
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             рь
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3927501 GCCCGCGTTGCCGGCGTTGCCGGCGGCGCCACCGGCCCACCGTCACCGCCGACCCCGCC 3927442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3927081 TGCCGCCTTGCCGCCTGCACCGCCGGCGCCCGGAGCCGTTGGTGCCGCCCACACCCGC 3927022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3927201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3927321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3927441 GTTGTCGCCGAGACCTGCGGCACCGGTTGCCGCCGATCCCCGCCGTCGCCGCTTGCCGC 3927382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3927261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The invention relates to evaluating strain variation within and between different populations of the tuberculosis bacterial pathogen, Mycobacterium tuberculosis or related Mycobacterium by determining the nucleotide sequence of the first strain at positions in the complete sequence of the genome that correspond to positions that differ in the nucleotide sequences of M. tuberculosis strains CDC 1551 (AAI99683) and H37RV (AAI99682). The method is useful for evaluating strain variation of M. tuberculosis and has valuable application in the fields of monotonics and positions of the sequence of the sequence of the sequence of the sequence of M. tuberculosis and has valuable application in the fields of monotonics and positions of the sequence of
      07-MAY-2002
                                                                                                                      Dirofilaria
                                                                                                                                                                                   Brugia malayi;
                                                                                                                                                                                                                                                                      Dirofilaria immitis transglutaminase gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ABK82308 standard; cDNA; 1466
                                                                   US6383774-B1
                                                                                                                                                                                                                   Nematode; transglutaminase; nematocide;
                                                                                                                                                                                                                                                                                                                                      27-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          at segdata.uspto.gov/sequence.html?DocID=6294328B1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from USPTO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    monitoring.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18 GTCGGGGACGGCGGTGTCCACGGCAGCGCTTCTAGCCCCAATCCGAGCTCCAACCAGCGC 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCACGCGCCCGTCGCGCTTGGGGCCCGTGGCGCCACTTGTTGCSGAGGGCTACGC 497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTCCTCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGTGCGGTTCCTCTCGCGA 437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCCTTCGCGGGGCTCCCATCCGCGGCCTACCCGACGCCGTTCGTCGCTCCGGGTGAGGA 377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCCGAGCACCTCACTCTGGTGCCCTCCAAGCCGGACGAGGTACCGCAAGCTCGGTTCCTT 317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGTTTTCCACGGCGAGTGCTTCGTGGTGGGCGACAATATCGACACCGACCAGATCATCCC 257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGGGTCCATCGTCCCCGCGGCCGCTGCTGCCGCCGCGGCGGCAGCTCGCCGTCGTCAGC 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    215;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCCACCGGCGAAACCAGCACCGGTGGGGTTGTCCGCGCCGGACCCGCCGGCACCTCCGG 3927082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCCGTCAAAGCCGGAGAGGCCCAGGCCGAGACCGCTGGCCCCATCGCCGCCGTCACCGC 3927262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGCCGGTACCGGTCGCCCGCCGGCCGCCGGCGCGCGCGCCACCTGTGCCGCCGG 3927142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCGGCCGCCGGCCCGATGCCTGCACTACCGGTGGCGCCGACAACGCCGCCGGTGC 3927202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGGCCCCGTTGATGCCGCCGGCGCGCCGGCCTGCCGCCCTTGGCCGCCTTGGC 3927322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4403765 BP; 757105 A; 1447799 C; 1441301 G; 757371 T; 189 other;
                                                                                                                         immitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                      (first
                                                                                                                                                                                   Onchocerca volvulus;
                                                                                                                                                                                                                                                                                                                                      entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 57.2;
Pred. No. 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                   antinematode vaccine;
                                                                                                                                                                                                                   Dirofilaria immitis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 22;
).068;
                                                                                                                                                                                                                                                                             #5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 264;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4403765;
                                                                                                                                                                                   gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
```

```
RESULT 15
ABK8239)-C
ID ABK82
XX ABK82
XX 27-AU
XX Dirof
XX Dirof
XX Nemat
KW Brugi
XX Brugi
XX O1-MA
XX 07-MA
XX 03-DE
PR 03-DE
PR 12-JU
XX XX (HESK
XX MESSX
XX (HESK
                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                          Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                            1405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The invention relates to an isolated nucleic acid (I) encoding nematode transglutaminase. (I), optionally incorporated into recombinant viruses or cells, are used to treat or prevent infestation by parasitic nematodes in humans or animals, especially by Dirofilaria immitis, Brugia malayi or Onchocerca volvulus. (I) can also be used for expression of the corresponding recombinant proteins which are also useful in antinematode vaccines and for raising antibodies (useful for treatment or diagnosis). ABK82304-ABK82347 represent nematode transglutaminase
                                    03-DEC-1996;
12-JUN-1997;
                                                                                                                                                                                                                                                                                                                                                           1465 A 1465
                                                                                                                                                                                                                                                                                           ABK82309 standard; cDNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     coding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       New
for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chandrashekar
                                                                                                   07-MAY-2002.
                                                                                                                          US6383774-B1
                                                                                                                                                   Dirofilaria immitis
                                                                                                                                                                          Nematode; transglutaminase; nematocide; Dirofilaria immitis; Brugia malayi; Onchocerca volvulus; antinematode vaccine; ge
                                                                                                                                                                                                                   Dirofilaria
                                                                                                                                                                                                                                           27-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                          1345 TTTTGTTTACCTTATGTTACTGTTGTTATTGTATTACTATTTTGCCCCTTGTTTTTTTAAAT 1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 1466 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Example 7; Column 61-63; 66pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     03-DEC-1996;
12-JUN-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             04-DEC-1997;
             (HESK-) HESKA CORP
                                                                         04-DEC-1997;
                                                                                                                                                                                                                                                                  ABK82309;
                                                                                                                                                                                                                                                                                                                                                                                  1033 A 1033
                                                                                                                                                                                                                                                                                                                                                                                                                                  973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (HESK-) HESKA CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     nucleic acid encoding nematode transglutaminase, useful in vaccines treating or preventing nematode infestation in humans and animals
                                                                                                                                                                                                                                                                                                                                                                                                         2002-451385/48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gnosis). \mathtt{ABK82304}\text{-}\mathtt{ABK82347} represent nematode transglutaminase sequences and primers of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              18
                                                                                                                                                                                                                   immitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ₽,
                                    96US-0781420.
97US-0874102.
                                                                         9705-0984919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      96US-0781420
97US-0874102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           97US-0984919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            520 A; 209 C; 298 G;
                                                                                                                                                                                                                transglutaminase gene #6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5.5%;
                                                                                                                                                                                                                                                                                           1466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 57;
Pred. No.
                                                                                                                                                                                                                                                                                           ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ed. No. 0.011;
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            439 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 24; Length 1466;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                          gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                           SS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
```

```
δÃ
                                                                                                                     밁
                                                                                                                                                Qy
                                                                                                                                                                                 В
                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                         SXCCCCCCCCXXXTTTXXXX
Search completed: April
Job time : 1585 secs
                                                             멍
                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                            Query Match
Best Local 9
                                                                                                                                                                                                                                                                                                                                  The invention relates to an isolated nucleic acid (I) encoding nematode transglutaminase. (I), optionally incorporated into recombinant viruses or cells, are used to treat or prevent infestation by parasitic nematodes in humans or animals, especially by Dirofilaria immitis, Brugia malayi or Onchocerca volvulus. (I) can also be used for expression of the corresponding recombinant proteins which are also useful in antinematode vaccines and for raising antibodies (useful for treatment or diagnosis). ABK82304-ABK82347 represent nematode transglutaminase coding sequences and primers of the invention.
                                                                                         1033 A 1033
                                                                                                                                                                                                                                                                                                        Sequence 1466 BP; 440 A; 297 C; 209 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Example
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     New nucleic acid encoding nematode transglutaminase, useful in vaccines for treating or preventing nematode infestation in humans and animals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chandrashekar R;
                                                                                                                                       122 TTTTGTTTACCTTATGTTACTGTTGTTATTGTATTACTATTTTGCCCCTTGTTTTTTAAAT
                                                                                                                        62
                                                             2 A 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    treating
                                                                                                                        81;
                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7; Column 67; 66pp; English.
                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    or preventing nematode
                ω
                                                                                                                                                                                                                                                          5.5%;
                 2003,
                                                                                                                                                                                                                                            0,
                                                                                                                                                                                                                                          Score 57; DB 24; Pred. No. 0.011; 0; Mismatches 40
                 03:23:08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    infestation in
                                                                                                                                                                                                                                                                                                      520 T; 0 other;
                                                                                                                                                                                                                                             40;
                                                                                                                                                                                                                                                                         Length 1466;
                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                   63
                                                                                                                        w
                                                                                                                                                                                                              972
```

0;

	·	
		·
·	1	
-		

```
Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Minimum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OM nucleic -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Perfect score:
      a a
                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
    Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Published_Applications_NA:*

1: /cgn2_6/ptodata/1/pubpna/V

2: /cgn2_6/ptodata/1/pubpna/V

3: /cgn2_6/ptodata/1/pubpna/V

4: /cgn2_6/ptodata/1/pubpna/V

4: /cgn2_6/ptodata/1/pubpna/V

5: /cgn2_6/ptodata/1/pubpna/V

6: /cgn2_6/ptodata/1/pubpna/V

8: /cgn2_6/ptodata/1/pubpna/V

9: /cgn2_6/ptodata/1/pubpna/V

9: /cgn2_6/ptodata/1/pubpna/V

11: /cgn2_6/ptodata/1/pubpna/V

11: /cgn2_6/ptodata/1/pubpna/V

11: /cgn2_6/ptodata/1/pubpna/V

12: /cgn2_6/ptodata/1/pubpna/V

13: /cgn2_6/ptodata/1/pubpna/V

14: /cgn2_6/ptodata/1/pubpna/V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               April 3, 2003, 04:00:14; Search time 1639 Seconds (without alignments) 552.846 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-027-450-46
1033
                                                                                                                                                                                                                                                                                                                                                                                        Match Length
                                                                                                                                                                                                                                                                                                                                                     100.0
                                                                                                                                                                                                                                                                                                                                                                                                          Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              593429 seqs, 438583890 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1190.32284
1190.32084
1190.3208
55.5206
55.5206
55.5206
55.5206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       : /cgn2_6/ptodata/1/pubpna/US07_PUBCOMB.seq:*
:/cgn2_6/ptodata/1/pubpna/US06_PUBCMB.seq:*
:/cgn2_6/ptodata/1/pubpna/US06_PUBCMB.seq:*
:/cgn2_6/ptodata/1/pubpna/US06_PUBCOMB.seq:*
:/cgn2_6/ptodata/1/pubpna/US07_NEW_PUB.seq:*
:/cgn2_6/ptodata/1/pubpna/US08_NEW_PUB.seq:*
:/cgn2_6/ptodata/1/pubpna/US08_PUBCOMB.seq:*
:/cgn2_6/ptodata/1/pubpna/US08_PUBCOMB.seq:*
:/cgn2_6/ptodata/1/pubpna/US09_NEW_PUB.seq:*
:/cgn2_6/ptodata/1/pubpna/US09_NEW_PUB.seq:*
:/cgn2_6/ptodata/1/pubpna/US09_NEW_PUB.seq:*
:/cgn2_6/ptodata/1/pubpna/US09_NEW_PUB.seq:*
:/cgn2_6/ptodata/1/pubpna/US09_NEW_PUB.seq:*
:/cgn2_6/ptodata/1/pubpna/US09_NEW_PUB.seq:*
:/cgn2_6/ptodata/1/pubpna/US09_NEW_PUB.seq:*
:/cgn2_6/ptodata/1/pubpna/US09_NEW_PUB.seq:*
:/cgn2_6/ptodata/1/pubpna/US09_NEW_PUB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                        995
1112
1107
756
                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                       10
9
12 US-10-027-450-46
12 US-10-027-450-48
12 US-10-027-450-50
12 US-10-027-450-50
13 US-10-027-450-50
14 US-10-027-450-50
15 US-09-938-842A-1335
16 US-09-938-842A-1335
17 US-09-878-574-1370
18 US-09-878-574-123
19 US-09-878-574-123
10 US-09-878-574-131
10 US-09-764-846-95
10 US-09-764-846-95
10 US-09-960-352-84-31
10 US-09-960-352-84-31
                                                                                                                                                                                                                                                                                                                                                                                        Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                               SUMMARIES
              Sequence 46, Appl
Sequence 52, Appl
Sequence 50, Appl
Sequence 996, App
Sequence 996, App
Sequence 1335, Ap
Sequence 1701, App
Sequence 1701, App
Sequence 122, App
Sequence 123, App
Sequence 18, Appl
Sequence 18, Appl
Sequence 18, Appl
Sequence 95, Appl
Sequence 95, Appl
Sequence 31, Appl
Sequence 31, Appl
Sequence 31, Appl
Sequence 31, Appl
                                                                                                                                                                                                                                                                                                                                                                                      Description
                                                                                        Ş
                                                                                                                                Дb
                                                       В
                                                                                                                                                               Qy
                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                             Qy
                                                         121
                                                                                                                                    13
                                                                                                                                                                       61
```

RESULT 1 US-10-027-450-46 ; Sequence 46, A		0 C C C C C C C C C C C C C C C C C C C	-
-450-46 e 46, A		51. 2 51. 2	ກ ວ
-46 Application U			
16 Application US/10027450		3314 3310 3310 1003 1003 31003 31003 31003 1531 1531	418
\$/100		9999991110	10
027450	ALIGNMENTS	US-09-770-444-478 US-09-7764-864-490 US-09-7764-864-31 US-10-152-661-606 US-09-866-050A-606 US-09-866-050A-606 US-09-865-050A-606 US-09-865-050A-608 US-09-925-300-577 US-01-047-75-71 US-10-047-75-71 US-10-047-75-71 US-10-101-254-13 US-10-118-984-25 US-09-788-574-15033 US-09-788-711-25 US-10-105-931-25 US-09-788-71-25 US-10-105-931-25 US-10-105-931-25 US-10-105-931-25 US-10-105-931-25 US-10-105-931-25 US-10-105-547-63 US-10-105-547-63 US-10-105-136-633 US-10-176-758-237 US-10-063-502-63 US-10-175-737-237 US-10-063-502-63	-09-960-352-494
		Sequence 478, App Sequence 478, App Sequence 31, Appl Sequence 606, App Sequence 606, App Sequence 606, App Sequence 607, Appl Sequence 577, App Sequence 317, Appl Sequence 11, Appl Sequence 11, Appl Sequence 11, Appl Sequence 11, Appl Sequence 25, Appl Sequence 27, Appl Sequence 23, Appl Sequence 63, Appl Sequence 63, Appl Sequence 63, Appl Sequence 637, Appl Sequence 237, A	ло л

; SOFTWARE: Microsoft Word Version 7.0A
; SEQ ID NO 46
; LENGTH: 1033
; TYPE: DNA
; ORGANISM: Zea mays
US-10-027-450-46 Query Match 100.0%; Score 1032.6; DB 1 Best Local Similarity 100.0%; Pred. No. 3.6e-275; Matches 1033; Conservative 0; Mismatches 0; GENERAL INFORMATION:
APPLICANT: Falco, Saverio Carl
APPLICANT: Hitz, William D. Patent No. US20020102715A1 CURRENT APPLICATION NUMBER: US/10/027,450 CURRENT FILING DATE: 2001-12-20 PRIOR APPLICATION NUMBER: 60/063,423 PRIOR FILING DATE: 1997 October 28 NUMBER OF SEQ ID NOS: 54 APPLICANT: Kinney, Anthony J.
APPLICANT: Cahoon, Rebecca E.
APPLICANT: Rafalski, J. Antoni
TITLE OF INVENTION: PLANT BRANCHED CHAIN AMINO ACID BIOSYNTHETIC
FILE REFERENCE: BB-1126 181 AGCTCGCCGTCGTCAGCCGTTTTCCACGGCGAGTGCTTCGTGGTGGGCGACAATATCGAC 121 CTAAAATGCCGCCGCGCTGGGTCCATCCTCCCGGGGCGGCGGCTGCTGCCGCGGCGGCAGC 180 CGAGCTCCAACCAGCGCGTTTATCCGGCGCTCCCAGCTCACCTGTCATCGCCTCCACTCA 120 CGAGCTCCAACCAGCGCGTTTATCCGGCGCTCCCAGCTCACCTGTCATCGCCTCCACTCA 120 CTAAAATGCCGCCGCGCTGGGTCCATCGTCCCCGCGGCCGCTGCTGCCGCGGCGGCAGC 180 DB 12; Length 1033; Indels 0; Gaps 240

0;

```
US-10-027-450-52
US-10-027-450-52
Sequence 52, Application US/10027450
Patent No. US20020102715A1
GENERAL INFORMATION:
APPLICANT: Falco, Saverio Carl
APPLICANT: Kinney, Anthony J.
APPLICANT: Kinney, Anthony J.
APPLICANT: Cahoon, Rebecca E.
APPLICANT: Rafalski, J. Antoni
TITLE OF INVENTION: PLANT BRANCHED CHAIN AMI
FILE REFERENCE: BB-1126
CURRENT APPLICATION NUMBER: US/10/027,450
CURRENT FILING DATE: 2001-12-20
                                                                                                                                                                  CCTCTGGAGCTCACGGACGTTGGGGCCCTGGAAGGAGTGCAAGACAGGGGATGTGGTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGCGGTTCCTCTCGCGAGCACGCGCCCGTCGCGCTTGGGGCCGCTGGCGCACGCGCATT
                                                                                                                                                                                                                     CGGAGATGAAGAAGTAAGCTGGAGTTAGGACTAAGAGTTACTGCACCTACTTGATGTCGA
                                                                                                                                                                                                                                                                                                                                                                            ACAGGAATGATTGCGTCGAAAGCTGCTGCATGAGGGAAAGCTTATGCAGCCGAGCCTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTGGACCTTGCTAACTCCGTTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTGGACCTTGCTAACTCCGTTTTTATTAACCACCTCTGGCAAGGAGTACAAGCTGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTTGCSGAGGGCTACGCGCGCATCTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTTGCSGAGGGCTACGCGCGCATCTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCAAGCTCGGTTCCTTCGCCTTCGCGGGGCTCCCATCCGCGGCCTACCCGACGCCGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGCAAGCTCGGTTCCTTCGCCGTGCGCCTCCCATCCGCGGCCTACCCGACGCCGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCGACCAGATCATCCCCGCCGAGCACCTCTGGTGCCCTCCAAGCCGGACGAGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCGACCAGATCATCCCCGCCGAGCACCTCACTCTGGTGCCCTCCAAGCCGGACGAGTAC
                                                                                                                                                                                                                                                                                                                                    CGGAGATGAAGAAGTAAGCTGGAGTTAGGACTAAGAGTTACTGCACCTACTTGATGTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGCTCGCCGTCGTCAGCCGTTTTCCACGGCGAGTGCTTCGTGGTGGGCGACAATATCGAC
                                                                                                                                                                                                           1033
                                                                                                                                                                                      1033
                                CHAIN AMINO
                                ACID
                                BIOSYNTHETIC
                                                                                                                                                                                                           1020
                                                                                                                                                                                                                               1020
                                                                                                                                                                                                                                                   960
                                                                                                                                                                                                                                                                        960
                                                                                                                                                                                                                                                                                                                900
                                                                                                                                                                                                                                                                                                                                    840
                                                                                                                                                                                                                                                                                                                                                         840
                                                                                                                                                                                                                                                                                                                                                                             780
                                                                                                                                                                                                                                                                                                                                                                                                 780
                                                                                                                                                                                                                                                                                                                                                                                                                                        720
                                                                                                                                                                                                                                                                                                                                                                                                                                                             660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                     720
                                                                                                   QY
                                                                                                                                                                                                          В
                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                  Вþ
                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                            QY
                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LENGTH: 995
; TYPE: DNA
; ORGANISM: Triticum
US-10-027-450-52
                δÃ
                                        В
                                                            δõ
                                                                                  Ъ
                                                                                                                          밁
                                                                                                                                          Qy
                                                                                                                                                                 Db
                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                   QY
                                                                                                                                                                                                                                                                                         Вp
                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                     QΥ
                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION NUMBER: 60/063,423
PRIOR FILING DATE: 1997 October 28
NUMBER OF SEQ ID NOS: 54
SOFTWARE: Microsoft Word Version 7.01
SEQ ID NO 52
LENGTH: 995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 93.0%;
Best Local Similarity 99.0%;
Matches 978; Conservative
                      861
                                                                                                                          899
                                                                                                                                                                   608
                                                                                                                                                                                                           548
                                                                                                                                                                                                                                                   488
                                                                                                                                                                                                                                                                                                                                                                                                                     248
                                                                                                                                                                                                                                                                                                                                                                                                                                                             188
                                          788
                                                             801
                                                                                  728
                                                                                                     746
                                                                                                                                              989
                                                                                                                                                                                      626
                                                                                                                                                                                                                               566
                                                                                                                                                                                                                                                                        506
                                                                                                                                                                                                                                                                                            428
                                                                                                                                                                                                                                                                                                                446
                                                                                                                                                                                                                                                                                                                                     368
                                                                                                                                                                                                                                                                                                                                                         386
                                                                                                                                                                                                                                                                                                                                                                              308
                                                                                                                                                                                                                                                                                                                                                                                                 326
                                                                                                                                                                                                                                                                                                                                                                                                                                         266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGCGGTGTCCACGGCAGCGCTTCTAGCCCCCAATCCGAGCTCCAACCAGCGCGTTTATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGGCGGTTTCCACGGCAGCGCTTCTAGCCCCAATCCGAGCTCCAACCAGCGCGTTTATCC
                                         CCGTCGCGCTTGGGGCCCGCTGGCGCACGCGCCATTGTTGCSGAGGGCTACGCGCGCATCT
                                                                                                                                                                                                                                                                                                                                                                            CTGCATGAGGGAAAGATCAGCTTATGCAGCCGAGCCTCTGCGGAGATGAAGAAGTAAGCT
                                                                                              CTGCATGAGGGAA-----AGCTTATGCAGCCGAGCCTCTGCGGAGATGAAGAAGTAAGCT
                                                                                                                                                                            TTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATGCTGGCCCTGTAA
                                                                                                                                                                                                           CCTGGAAGGAGTGCAAGACAGGGGATGTGGTCACCGTTGGACCTTGCTAACTCCGTTTTTA
                                                                                                                                                                                                                      GCTACGCCATCATTGTCGGCGAGCCAACTTCGGGTGCGGTTCCTCGCGAGCACGCGC
                                                                                                                                                                                                                                                                                                                                               GCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGTGCGGTTCCTCTCGCGAGCACGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACGGCGAGTGCTTCGTGGGGGGGACAATATCGACACCGACCAGATCATCCCCGCCGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACGGCGAGTGCTTCGTGGTGGGCGACAATATCGACACCGACCAGATCATCCCCGCCGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  aestivum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; Score 961.2; l; Pred. No. 1.8e.
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ,8e-255;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DΒ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                   547
                                                                                                       800
                                                                                                                                                                   667
                                                                                                                                                                                        685
                                                                                                                                                                                                                                 625
                                                                                                                                                                                                                                                                                                                 505
                                                                                                                                                                                                                                                                                                                                                         445
                                                                                                                                                                                                                                                                                                                                                                                                                      307
                                                                                                                                                                                                                                                                                                                                                                                                                                         325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            85
    907
                                          847
                                                               860
                                                                                   787
                                                                                                                           727
                                                                                                                                                                                                           607
                                                                                                                                                                                                                                                                         565
                                                                                                                                                                                                                                                                                            487
                                                                                                                                                                                                                                                                                                                                      427
                                                                                                                                                                                                                                                                                                                                                                              367
                                                                                                                                                                                                                                                                                                                                                                                                 385
                                                                                                                                                                                                                                                                                                                                                                                                                                                             247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1;
```

661

781 781 721 721 601 601 541 541 481 481 421 361

421

301

361

241

241 181

301

Qy В δÃ В δÃ 밁 Qy ₽ . 29 DЪ οy 밁 Ω 밁 δÃ 밁 QY В δÃ B δÃ 밁 Qy В Qy 망 Qy 밁

961 196 901 901 841

Ď,

1021

ì

```
APPLICANT: Falco, Saverio Carl
APPLICANT: Kinney, Anthony J.
APPLICANT: Kinney, Anthony J.
APPLICANT: Kinney, Anthony J.
APPLICANT: Cahoon, Rebecca E.
APPLICANT: Cahoon, Rebecca E.
APPLICANT: Rafalski, J. Antoni
TITLE OF INVENTION: PLANT BRANCHED CHAIN AMINO ACID BIOSYNTHETIC ENZ
FILE REFERENCE: BB-1126
CURRENT APPLICATION NUMBER: US/10/027,450
CURRENT FILING DATE: 2001-12-20
PRIOR APPLICATION NUMBER: 60/063,423
PRIOR FILING DATE: 1997 October 28
NUMBER OF SEQ ID NOS: 54
SOFTWARE: Microsoft Word Version 7.0A
SEQ ID NO 48
LENGTH: 1112
TYPE: DNA
ORGANISM: Cryza sativa
US-10-027-450-48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 3
US-10-027-450-48
; Sequence 48, A
                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                      Дb
                                                               Š
                                                                                         B
                                                                                                          δÕ
                                                                                                                                    В
                                                                                                                                                         δÃ
                                                                                                                                                                               밁
                                                                                                                                                                                                     Š
                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
 552
                       498
                                             492
                                                                    438
                                                                                          432
                                                                                                                                        372
                                                                                                                                                             318
                                                                                                                                                                                     312
                                                                                                                                                                                                                                                      198
                                                                                                                                                                                                                                                                                                   147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            981
                                                                                                                378
                                                                                                                                                                                                          258
                                                                                                                                                                                                                                252
                                                                                                                                                                                                                                                                                                                                               87
                                                                                                                                                                                                                                                                                                                                                                                           27
                                                                                                                                                                                                                                                                                                                                                                     72
                                                                                      GTCCTCCCGCTACGCCATCATTGTCGGGGGGAGCCAACTTCGGGTGCGGTTCCTCTCGCGA 437
                                                                                                                                                                                                                            CGTTTTCCACGCCGAGTGCTTCGTGGTGGTCGACAATATCGACACCGACCAGATCATCCC 257
                                                                                                                                                                                                                                                                                        C-----GICCCCGCGGCCGCCGCGCGGGGGGCAGCTCGCCGTCGTCAGC 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCACGCGCCCGTCGCGCTTGGGGCCCGCGCGCATTGTTGCSGAGGGCTACGC 497
                                                                                                                                                 CGCCTTCGCGGGGCTCCCATCCGCGGCCTACCCGACGCCGTTCGTCGCTCCGGGTGAGGA 377
                                                                                                                                                                                               CGCCGAGCACCTCACTCTGGTGCCCTCCAAGCCGGAGTACCGCAAGCTCGGTTCCTT
                                                                                                                                                                                                                                                                                                                       CCGCAGCTGGGTCGCGGCTATCTGCCGGCCCGCCCTGAAATGCCACCACAGTCGTCCCCT
                                                                                                                                                                                                                                                                                                                                                                                          GGCGGTGTCCACGGCAGCGCTTCTAGCCCCCAATCCGAGCTCCAACCAGCGCGTTTATCCG 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGCTCTGTTGCCATCTAAAAAAAAAA 995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTGCTCTGTTGCCAAAAAAAAAAAAAAAA 1008
                                                                                                                                      CGCCTTCGTCGGCCTCCCCACCGCGGCGTACCCGACGCCGTTCGTCGCCCCCGGCGAGGA 431
                                                                                                                                                                                   GGCCGAGCACCTGACCCTGGTCCCGTCCAAGCCCGACGAGTACCGCAAGCTCGGCTCGTT
                                                                                                                                                                                                                                                                            GACCGCCGTGGTCGCCGCGGCTGCCGGCTGCCGCGGGGGGGACTCGACGTCGGCCGG 251
                                                                                                                                                                                                                                                                                                                                               GGCGGCGCCGGTGACAGCAGTTCTGGCACCGTGTCCCACGCCCTCGAGGACGTTCCGCCG 131
                                            570;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8, Application US/10027450 US20020102715A1
                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                               44.7%; Score 462.2; DB 12; ilarity 78.2%; Pred. No. 1.3e-117; Conservative 1; Mismatches 149;
                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 1112;
                                                                                                                                                                                                                                                                                                                                                                                                                9;
                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ENZYMES
                                                                                                                                                                                                         317
                                                                                                                                                                                                                                                                                                                        191
                                                                                                                                                                                   371
                                           551
                                                                                                                                                                                                                                                                                                                                                                                                                ٠,
밁
                  Ş
                                        DЬ
                                                              Qy
                                                                                        밁
                                                                                                         δÃ
                                                                                                                                    밁
                                                                                                                                                       δõ
                                                                                                                                                                                ДЪ
                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                QΥ
                                                                                                                                                                                                                                                                         멍
                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QY
                                                                                                                                                                                                                                                                                                                       Best Loc
Matches
 528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      558
                      472
                                            468
                                                                                         408
                                                                                                              352
                                                                                                                                    351
                                                                                                                                                                                  291
                                                                                                                                                                                                         232
                                                                                                                                                                                                                               231
                                                                                                                                                            292
```

```
; TYPE: DNA
; ORGANISM: Glycine
US-10-027-450-50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-027-450-50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE: Microsoft Word Version 7.0A
SEQ ID NO 50
LENGTH: 1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Falco, Saverio Carl
APPLICANT: Hitz, William D.
APPLICANT: Kinney, Anthony J.
APPLICANT: Cahoon, Rebecca E.
APPLICANT: Rafalski, J. Antoni
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 50, Applica Patent No. US2002010 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE OF INVENTION: PLANT BRANCHED CHAIN AMINO ACID BIOSYNTHETIC ENZYMES FILE REFERENCE: BB-1126 CURRENT FILTON NUMBER: US/10/027,450 CURRENT FILING DATE: 2001-12-20 PRIOR APPLICATION NUMBER: 05/063,423 PRIOR APPLICATION NUMBER: 05/063,423 PRIOR APPLICATION NUMBER: 05/063,423 PRIOR FILING DATE: 1997 October 28 NUMBER OF SEQ ID NOS: 54
                                                                                                                                                                                                                                                                                                                                                                                                                                   Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3 50, USZÕOZ
GCGGGCAGCAGCTCGCCGTCGTCAGCCGTTTTCCACGGCGAGTGCTTCGTGGTGGGCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAAGTCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAAAGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCCTGTAATTGAGGCGGGAGGGATCTTTGCCTACGCCCGGAAGACAGGAATGATTGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGTTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGTTGGGGCCTGGAAGGAGTGCAAGACAGGGGATGTGGTCACCGTGGACCTTGCTAACTC
                                                                                                                                                                                                                             GACGAGTACCGCAAGCTCGGTTCCTTCGCCTTCGCGGGGCTCCCCATCCGCGGCCTACCCG
                                                                                                                                                                                                                                                                         ANTATCGACACCGACCAGATCATTCCCGCCGAGTACCTCACCCTCGTCCCTTCCAAGCCC
                                                                                                                                                                                                                                                                                                                                              TCCGCCGCGTCCGCTTCTCCCCTCCGCCTTCCACGGCCTCTGCTACGTCGTCGGCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGGTTATTGAGGCAGGCGGGATCTTTGCCTATGCCCGGAAGACCGGAATGATCGCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CACTGGAGCCTGGAAGGAGTGCAAGACCGGGGGATGTGGTCACGGTGGAACTTGATAATTG
                                                                  ACGCCGTTCGTCGCTCCGGGTGAGGAGTCCTCCCGCTACGCCATCATTGTCGGCGGAGCC
                                                                                                                                                                                                       GACGAGTACGAGAAGCTCGGCTCCTACGCCCTCATCGGCCTCC---CCGCCACCTACGCC
                                                                                                                                                                                                                                                                                                           AATATCGACACCGACCAGATCATCCCCGCCGAGCACCTCACTCTGGTGCCCTCCAAGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 al Similarity
430; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Application US/10027450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0102715A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 291.2; DB 1
Pred. No. 2.1e-70;
1; Mismatches 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 12; Length 1107;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   189;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                   531
                                                                                                                                                                      411
                                                                                                                                                                                                                                                                                                            291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       677
                                                                  527
                                                                                                     471
                                                                                                                                    467
                                                                                                                                                                                                       407
                                                                                                                                                                                                                                        351
                                                                                                                                                                                                                                                                         350
                                                                                                                                                                                                                                                                                                                                              290
                                                                                                                                                                                                                                                                                                                                                                             231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ņ,
```

```
CURRENT APPLICATION NUMBER: US/09/938,842A
CURRENT FILING DATE: 2001-08-24
PRIOR APPLICATION NUMBER: US 60/227,866
PRIOR FILING DATE: 2000-08-24
PRIOR PELICATION NUMBER: US 60/264,647
PRIOR PELICATION NUMBER: US 60/264,647
PRIOR PELICATION NUMBER: US 60/300,111
PRIOR APPLICATION NUMBER: US 60/300,111
PRIOR FILING DATE: 2001-06-22
NUMBER OF SEQ ID NOS: 5379
SEQ ID NO 996
LENGTH: 756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-938-842A-996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δõ
                                                                                                                                                          Qy
                                                                                                                                                                                              В
                                                                                                                                                                                                                        QΥ
                                                                                                                                                                                                                                                         멍
                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                            Qγ
                                                                                                                                맑
                                                                                                                                                                                                                                                                                                                            Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-938-842A-996
                           δÃ
                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
APPLICANT: Harper, Jeff
APPLICANT: Kreps, Joel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 996, Application US/09938842A Patent No. US20020160378A1
                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Wang, Xun
APPLICANT: Zhu, Tong
TITLE OF INVENTION: STRESS-REGULATED GENES OF PLANTS,
TITLE OF INVENTION: SAME, AND METHODS OF USE
FILE REFERENCE: SCRIP1300-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: DNA
ORGANISM: Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  712 GCCCGGAAGACAGGAATGATTGCGTC 737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    705
                                                                                                                                                                                                                                                                                                                                               202 TTCCACGGCGAGTGCTTCGTGGTGGGCGACAATATCGACACCGACCAGATCATCCCCGCC
                                                                 445
                                                                                                442
                                                                                                                                385
                                                                                                                                                                 382
                                                                                                                                                                                                328
                                                                                                                                                                                                                               322
                                                                                                                                                                                                                                                              268
                                                                                                                                                                                                                                                                                                                            208 TTCCATGGACTGTGCTATGTCGTCGGCGACAACATCGACACTGACCAAATCATTCCCGCG
 505
                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCTTGAAACCGATCGGCGACGCGGGTCCAGTGATCGAGGCCGGTGGCATCTTTGCCTAT 764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTGGTCACCGTGGACCTTGCTAACTCCGTTTTTATTAACCACACCTCTGGCAAGGAGTAC 651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGGTGTACCCTCTGGAGCTCACGGACGTTGGGGCCTGGAAGGAGTGCAAGACAGGGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCAGGAAAACCGGCATGATTCCCTC
                                                                                                                                                   TCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGTGCGGTTCCTCTCGCGAGCAC
                                                                                                                                                                                                               TTCGCGGGGCTCCCATCCGGGCGTACCCGACCGCTTCGTCGCTCCGGGTGAGGAGTCC 381
                                                                                                                                                                                                                                                                               GAGCACCTCACTCTGGTGCCCTCCAAGCCGGACGAGTACCGCAAGCTCGGTTCCCTTCGCC 321
ATCTTTTTCAGGAACTCTGTTGCTACTGGTGAGGTTTATCCTTTGGATT---CTGAAGTT
                  ATCTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTACCCTCTGGAGCTCACGGACGTT 561
                                                               GCTCCGGTTTGTTTAGGAGCAGCGGGAGCTAAAGCAGTGGTGGTCGCTCAGTCTTATGCTAGA
                                                                                            GCGCCCGTCGCGCTTGGGGCCCTCGCGCACGCGCCATTGTTGCSGAGGGCTACGCGCGC 501
                                                                                                                                ACGAAGTACTCATCATTGGCGGTGAAAACTTTGGATGTGGATCGTCACGTGAACAT 444
                                                                                                                                                                                                GAGTTTCTCACTCTCGTCCCTTCGAATCCAGAGGAATACGAGAAACTCGGTTCTTACGCT
                                                                                                                                                                                                                                                                                                                                                                                             360;
                                                                                                                                                                                                                                                                                                                                                                                          20.3%;
milarity 65.2%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                           Score 210; DB 9; Length 756; Pred. No. 4.5e-48; 0; Mismatches 180; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        790
                                                                                                                                                                                                                                                                                                                                                                                                 Indels 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TRANSGENIC PLANTS CONTAINING
                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         591
                                                                                                                                                                      441
                                                                                                                                                                                                     384
                                                                                                                                                                                                                                                                                                                                   267
                                                                                                                                                                                                                                                                                                                                                                   261
                                                                      504
                                                                                                                                                                                                                                                                                                                                                                                                  Ψ
```

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 6
US-09-770-445-344
                                                                                                                                                                                                                                              ; ORGANISM: Arabidopsis thaliana US-09-770-445-344
                                                                                                        Qy
                                                                                                                                     밁
                                                                                                                                                              Ωy
 Q
                           В
                                                     Qγ
                                                                                멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 344, Application US/09770445 Patent No. US20020023281A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                     SEQ ID NO 344
LENGTH: 948
                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                         FILE REFERENCE: 2023US (PARA-012PRV)
CURRENT APPLICATION NUMBER: US/09/770,445
CURRENT FILING DATE: 2001-01-26
PRIOR APPLICATION NUMBER: US 60/178,472
PRIOR FILING DATE: 2000-01-27
NUMBER OF SEQ ID NOS: 999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                              TITLE OF INVENTION: Expressed Sequences
TITLE OF INVENTION: thaliana
FILE REFERENCE: 2023US (PARA-012PRV)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                   SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                            TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              562 GGGGCCTGGAAGGAGTGCAAGACAGGGGGATGTGGTCACCGTGGACCTTGCTAACTCCG---
                                                                                                                                     382 TCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGTGCGGTTCCTCTCGCGAGCAC
                                                                                                262 GAGCACCTCACTCTGGTGCCCTCCAAGCCGGACGACGAGTACCGCAAGCTCGGTTCCTTCGCC
                                                                                                                                                     AGTATTTTGATCAATCATACGACTGGGAAAGAGTACAAGCCTAAGCCGATTGGTGATGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCTGCTGCTGCT 753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGACCAGTGATTGATGCTGGTGTATATTTGCTTATGCTAGGAAAGCTGGAATGATTCCA 741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCCCTGTAATTGAGGCGGAGGGATCTTTGCCTACGCCCGGAAGACAGGAATGATTGCG 735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----TTTTATTAACCACACCCTCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGGGTTTGTGATGAGTGTACAACTGGTGATGTTGCGACTGTTGAGTTGAGGGAAGGAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCGAAAGCTGCT 747
                                                                                TTAGTTGGTCTTCCA----GCTTCTTACAAGGAACGATTCGTTCAGCCAGGTGAGATGAAG
                                                   TTCGCGGGGCTCCCATCCGCGGCCTACCCGACGCCGTTCGTCGCTCCGGGTGAGGAGTCC
                                                                                                                                                                                             361;
                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                   FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                       Hoffman, Neil
Hurban, Patrick
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kricker, Maja
Slader, Ted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ledford, Brooke L. Woessner, Jeffrey P. Haas, William David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hamilton, Carol
Price, Jennifer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Davis, Keith R.
Allen, Keith
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matthew, Abraham V.
Ledford, Brooke L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Yu, Yang
Rameaka, Joshua
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Garcia, Carlos A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Page, Amy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Raines, Tracy M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       An, Yong-Qiang
                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Jorn
                                                                                                                                                                                                         20.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          G
                                                                                                                                                                                               0;
                                                                                                                                                                                                          Score 209.2; DB 1
Pred. No. 8.5e-48;
                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                               of Arabidopsis
                                                                                                                                                                                                                        DB 10;
                                                                                                                                                                                                183;
                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                          Length
                                                                                                                                                                                                 12;
                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 619
          441
                                                                                                                  321
                                                                                                                                              252
                                                             381
                                                                                         312
                                                                                                                                                                        261
```

Ψ

```
APPLICANT: Kreps, Joef
APPLICANT: Kreps, Joef
APPLICANT: Wang, Xun
APPLICANT: Wang, Xun
APPLICANT: Wang, Xun
APPLICANT: Wang, Xun
APPLICANT: Jhu, Tong
TITLE OF INVENTION: SAME, AND METHODS OF USE
FILE REFERENCE: SCRIP1300-3
CURRENT APPLICATION NUMBER: US/09/938,842A
CURRENT FILING DATE: 2001-08-24
PRIOR APPLICATION NUMBER: US 60/227,866
PRIOR APPLICATION NUMBER: US 60/264,647
PRIOR APPLICATION NUMBER: US 60/264,647
PRIOR FILING DATE: 2001-01-16
PRIOR APPLICATION NUMBER: US 60/300,111
PRIOR FILING DATE: 2001-06-22
NUMBER OF SEQ ID NOS: 5379
SEQ ID NO 1335
LENGTH: 771
                                                                                                                                                                                                                                                                                                                                                       ; TYPE: DNA
; ORGANISM: Arabidopsis thaliana
US-09-938-842A-1335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       U$-09-938-842A-1335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 1335, Application US/09938842A Patent No. US20020160378A1
                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                               168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      370
                                      324
                                                                                                                                                                                                                                                144 CATCGTCCCCGCGGCCGCTGCTGCCGCGGCGGCAGCAGCTCGCCGTCGTCAGCCGTTTT 203
                                                                        288
                                                                                                          264
                                                                                                                                                                             204
                                                                                                                                                                                                                                                                                  Watch 19.1%; Score 197.8; DB 9; Local Similarity 61.4%; Pred. No. 1.1e-44; nes 373; Conservative 0; Mismatches 222;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGGGCCTGGAAGGAGTGCAAGACAGGGGATGTGGTCACCGTGGAACCTTGCTAACTCCG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCGGGGCTCCCATCCGCGGCCTACCCGACGCCGTTCGTCGCTCCGGGTGAGGAGTCCTC 383
                                                                                                                                                            CCACGGCGAGTGCTTCGTGGTGGGCGACAATATCGACACCGACCAGATCATCCCCGCGA 263
                                                                                                                                                                                                              CATCCCACGTGCTGCCGCCTCAGAATCCGACTCTAACGAAGCCCTAGCCAACACAACCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCGAAAGCTGCTGCAT 751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATCTTTTCAGGAACTCTGTTGCTACTGGTGAGGTTTATCCTTTGGATT----CTGAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCGCCCGTCGCGCTTGGGGCCCTGGCGCACGCGCCATTGTTGCSGAGGGCTACGCGCGC
                                                                      AGCCGCTTGCACCTTCCCATCGAACCAGCAAGAGCGTGATGAGATCGCCGCTCACGCTCT
                                                                                                       GCACCTCACTCTGGTGCCCTCCAAGCCGGACGACTACCGCAAGCTCGGTTCCTTCGCCTT 323
                                                                                                                                         CCACGGCCTCTGCTATGTCTTGAAAGACAACATAGACACCGACCAGATCATCCCAGCAGG 287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCTGCTGCTGCTTGAT 742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGCCCTGTAATTGAGGCGGGAGGGATCTTTGCCTACGCCCGGAAGACAGGAATGATTGCG 735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATCTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTACCCTCTGGAGCTCACGGACGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCTCCGGTTTGTTTAGGAGCAGCGGGGGGCTAAAGCAGTGGTGGCTCAGTCTTATGCTAGA 489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGACCAGTGATTGATGCTGGTGGTATATTTGCTTATGCTAGGAAAGCTGGAATGATTCCA 726
                 Indels
                                                                                                                                                                                                                                                                                                                   Length 771;
                                                                                                                                                                                                                                                                                    12;
                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                              227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      429
                                                                    347
                                                                                                                                                                                                                                                                                    Ψ
                                                                                ; ORGANISM: Arabidopsis thaliana US-09-770-445-700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-770-445-700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뮭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Дb
Query Match
Best Local Similarity 60.3
                                                                                                                                                        SOFTWARE: FOR SEQ ID NO 700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 700,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                       CURRENT APPLICATION NUMBER: US/09/770,445
CURRENT FILING DATE: 2001-01-26
PRIOR APPLICATION NUMBER: US 60/178,472
PRIOR FILING DATE: 2000-01-27
NUMBER OF SEQ ID NOS: 999
                                                                                                                      LENGTH: 82
                                                                                                                                                                                                                                                                                TITLE OF INVENTION: Expressed Sequences TITLE OF INVENTION: thaliana FILE REFERENCE: 2023US (PARA-012PRV)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      762 ATTAGCT 768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAAAGCT 744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCCTGTAATTGAGGCGGGAGGGATCTTTGCCTACGCCCGGAAGACAGGAATGATTGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCCTGGAAGGAGTGCAAGACAGGGGATGTGGTCACCGTGGACCTTGCTAACTCCG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTACCCTCTGGAGCTCACGGACGTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCCGGTCTGTCTTGGAGCAGCTGGAGCTAAAGCCATAGTTGCTGAGTCTTACGCAAGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCCGTCGCGCTTGGGGGCCCCCACGCGCCCATTGTTGCSGAGGGCTACGCGCGCAT 503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAAGTACTCAATCATAATCGGCGGCGAAAACTTTGGTTGCGGATCGTCACGTGAACATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGTGCGGTTCCTCTCGCGAGCACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCTGGTCTACCA - - - GACTTCCACAAAACACGGTTCATTGAGCCAGGAGAGAACAGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCGGTTATTGATGCTGGTGGTATTTTTGCTTATGCGAGGATGATGGGGAATGATTCCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTTATTGACTAATCACACGACCGGTAAAAACTATAAGCTGAAGTCGATCGGTGATGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  --TTTTTATTAACCACCCCCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGTCTGTGAGGAGTGTAAGACAGGAGATACGGTGACGATCGAGCTGAGTGATAGTGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTTTTTCCGTAACTCGGTTGCTACAGGAGAGGTGTTTCCGCTCGAG---TCAGAGGTTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  INFORMATION:
                                                                                                                                           829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US20020023281A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matthew, Abraham V.
Ledford, Brooke L.
Woessner, Jeffrey P.
Haas, William David
                                                                                                                                                                           FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    An, Yong-Qiang
Hamilton, Carol M.
Price, Jennifer L.
Raines, Tracy M.
                                                                                                                                                                                                                                                                                                                                      Hoffman, Neil
Hurban, Patrick
                                                                                                                                                                                                                                                                                                                                                                          Davis, Keith R.
Allen, Keith
                                                                                                                                                                                                                                                                                                                                                                                                          Slader,
                                                                                                                                                                                                                                                                                                                                                                                                            Kricker, Maja
Slader, Ted
                                                                                                                                                                                                                                                                                                                                                                                                                                               Garcia, Carlos A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Yu, Yang
Rameaka, Joshua G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gorlach,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Page, Amy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Application US/09770445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Jorn
                                  19.0%;
               Score 196.6; DB 1
Pred. No. 2.4e-44;
1; Mismatches 235
                                                                                                                                                                                                                                                                                                                     of
                                                   DB 10;
                 235;
                 Indels
                                             Length
                                                     829;
                 15;
                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                464
```

밁 8 B Qγ В Qy В Š B δð В QΥ Вþ

Q 멍 QΥ 밁 QΥ 멍 Ş

ű,

```
APPLICANT: Byrum, Joseph R.
APPLICANT: La Rosa, Thomas J.
APPLICANT: La Rosa, Thomas J.
APPLICANT: La Rosa, Thomas J.
APPLICANT: Thompson, Michael D.
TITLE OF INVENTION: Nucleic Acid Molecules and Oth
TITLE OF INVENTION: Plants
FILE REFERENCE: 38 -21 (15401)B
CURRENT APPLICATION NUMBER: US/09/878,574
CURRENT FILING DATE: 2001-12-21
PRIOR APPLICATION NUMBER: 09/333,535
PRIOR FILING DATE: 1999-06-14
NUMBER OF SEQ ID NOS: 15775
LENGTH: 369
TYPE: DNA
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         . Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                           ; ORGANISM: Glycine max ; OTHER INFORMATION: Clone US-09-878-574-157
                                                                                                                                                                                                                                                                                                                                                             US-09-878-574-157
                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                δõ
 Query Match
Best Local Similarity
Matches 262; Conserv
                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                Sequence 157, Application US/09878574 Patent No. US20020110548A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          151
                                                                                                                                                                                                                                                                                                                                                                                                                       685 CGCTTATGCAAGAAAAGCCGGCATGATTCCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         354
                                                                                                                                                                                                                                                                                                                                                                                                                                                   705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CACTCACTAAAATGCCGCGCGCGCGCGGTCCATCGTCCCCGCGGCCGCTGCTGCCGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                     TGCCTACGCCCGGAAGACAGGAATGATTGCGTC 737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGTGTACCCTCTGGAGCTCACGGACGTTGGGGCCTGGAAGGAGTGCAAGACAGGGGATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTTCGGGTGCGGTTCCTCTCGCGAGCACGCGCCCGTCGCGCCTTGGGGCCCGCTGGCGCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCGTTCGTCGCTCCGGGTGAGGAGTCCTCCCGCTACGCCATCATTGTCGGCGAGCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGGCAGCAGCTCGCCGTCGTCAGCCGTTTTTCCACGGCGAGTGCTTCGTGGTGGGCGACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACGTTTCGTTGTTCCAGGAGAGATGAAATCAAAGTACTCAGTCATCATCGGCGGCGATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGATCGCGAGAAACTCGGCTCTTTCGCGCTTAACGGCTTACCA---AAATTCTACAACGA 327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGAGTACCGCAAGCTCGGTTCCTTCGCCTTCGCGGGGCTCCCCATCCGCGGCCTACCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CATCGACACCGATCAAATAATCCCCGCCGAGTACGGCACTCTCATCCCTTCGATTCCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TATCGACACCGACCAGATCATCCCCGCCGAGCACCTCACTCTGGTGCCCTCCAAGCCGGA 293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTCAGGCGAGTCAATAACCAGAGAGACTTTCCACGGCCTCTGCTTCGTCTTGAAAGACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGTCAC-----CGTGGACCTTGCTAACTCCGTTTTTATTAACCACACCTCTGGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTTCGGTTGCGGATCTTCCCGCGAACACGCTCCAGTTTGTCTCGGCGCGCGGGAGCTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAPACCACTTACTTCCTCCGCCACGATCATCACACGCGTCGCTGCATCATCCTCCGA 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
              18.1%;
70.8%;
                                                                            ID:
Score 187.2; DB 10;
Pred. No. 5.9e-42;
1; Mismatches 104;
                                                                           LIB3028-054-Q1-B1-E8
                                                                                                                                                                                                                                                       Other Molecules Associated
                            Length
                               369;
   ω
--
   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       233
                                                                                                                                                                                                                                                        with
   1;
```

•

```
; ORGANISM: Glycine max ; OTHER INFORMATION: Clone ID: LIB3028-034-Ql-B1-E6 US-09-878-574-1701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                             δÃ
                                                                                                                              Db
                                                                                                                                                            Qy
                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 10
US-09-878-574-1701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   덩
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                          Q
                                                               멍
                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         멂
                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQ ID NOS: 15775
SEQ ID NO 1701
LENGTH: 373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 1701, Application US/09878574 Patent No. US20020110548A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Byrum, Joseph R.
APPLICANT: La Rosa, Thomas J.
APPLICANT: Thompson, Michael D.
TITLE OF INVENTION: Nucleic Acid Molecules
TITLE OF INVENTION: Plants
FILE REFERENCE: 38-21 (15401)B
CURRENT APPLICATION NUMBER: US/09/878,574
CURRENT FILING DATE: 2001-12-21
CURRENT FILING DATE: 2001-12-21
                                                                                                                                                                                                                                                                              Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION NUMBER: 09/333,535 PRIOR FILING DATE: 1999-06-14
                                                                                                                                                                                                                                                                                                                                                                             TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 418
352
                                                                                                                                                     240 CACCGACCAGATCATCCCCGCCGAGGCACCTCACTCTGGTGCCCTCCAAGCCGGACGAGTA 299
                                                                                                                                                                                                                  180 CAGCTCGCCGTCGTCAGCCGTTTTCCACGGCGAGGTGCTTCGTGGTGGGCGACAATATCGA 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    538
                                                                295
                                                                                                                                                                                                  175 CGGCGCGTCCGCCTCCGTCCTTCCATGGCCTCCTGCTACGTCGTCGGCGACAACATCGA 234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         360 AAAACCGGCA 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      358 TICGTCGCTCCGGGTGAGGAGTCCTCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTC
                               360 CGTCGCTCCGGGTGAG
                                                                                                                                 235 GACCGATCAGATGATTCCCGCGGAGTAGCTCACCCTCGTCCCTTCGAAGCCCGACGAGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TACCCTCTGGAGCTCACGGACGTTGGGGCCTGGAAGGAGTGCAAGACAGGGGATGTGGGTC 597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTGGTCGCGGAGTCGTACGCTAGGATCTTCTTTCGGAACTCCGTGGCCACCGGCGAGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTGTTGCSGAGGGCTACGCGCGCATCTTTTTCGCAACTCCGTGGCCACTGGAGAGGTG 537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTCATCGAACCCGGCGAGATCAAAACCAAGTACGCCATCGTCATCGGCGGTGCCAACTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAGACAGGAA 727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCGTGGACCTTGCTAACTCCGTTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGGTGCGGTTCCTCTCGCGAGCACGCGCCCGTCGCGCCTTGGGGCCCGCTGGCGCACGCGCC 477
                                                             CGAGAAGCTCGGCTCCTACGCCCTCGTCGGCCTCC---CCGCCACCTAGGCCGCGCGCTT
                                                                                  CCGCAAGCTCCGTTCCTTCGCCTTCGCGGGGCTCCCATCCGCGGCCTACCCGACGCCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAACCGATCGGCGACGCGGGTCCAGTGATCGAGGCCGGTGGCATCTTTGCCTATGCCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACGATTGAGCTCGGAGAGCCGCTTGATCAATCACACCACCGGAAAGGAGTATCGCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TATCCGCTAGAG----TCGGAGGGACGCCTCTGCGAGGAGTGCACCACCGGCGATGTGGTG
CGTCGACCCCGGCGAG
                                                                                                                                                                                                                                                              141;
                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                            9.4%;
367
                                 375
                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                              Score 96.8; DB 10;
Pred. No. 5.5e-17;
0; Mismatches 52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Other Molecules Associated
                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                 373;
                                                                                                                                                                                                                                                                υ
                                                                                                                                                                                                                                                                Gaps
                                                                                                  359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62
                                                                  351
                                                                                                                                   294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              with
                                                                                                                                                                                                                                                                  ۳.
```

```
Qγ
                                                                                                                                                            ; TYPE: DNA
; ORGANISM: Glycine max
OTHER INFORMATION: Clone ID: LIB3028-055-Q1-B1-E5
US-09-878-574-122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ДЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; TYPE: DNA;
; ORGANISM: Glycine max
; OTHER INFORMATION: Clone ID: LIB3028-055-Q1-B1-E6
US-09-878-574-123
                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-878-574-122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 11
US-09-878-574-123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PATENT NO. US20020110548A1

GENERAL INFORMATION:

APPLICANT: Byrum, Joseph R.

APPLICANT: La Rosa, Thomas J.

APPLICANT: Thompson, Michael D.

TITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associated with

TITLE OF INVENTION: Plants

FILE REFERENCE: 38-21(15401)B

CURRENT APPLICATION NUMBER: US/09/878,574

CURRENT APPLICATION NUMBER: 09/333,535

PRIOR APPLICATION NUMBER: 09/333,535

PRIOR APPLICATION NUMBER: 09/333,535

PRIOR FILING DATE: 1999-06-14

NUMBER OF SEQ ID NOS: 15775

SEQ ID NO 123

LENGTH: 218

TYPE: NUMBER
                                                                                                                                                                                                                                           NUMBER OF SEQ ID NOS:
SEQ ID NO 122
LENGTH: 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 122, Application US/09878574 Patent No. US20020110548A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 123, Application US/09878574
                                                                                         Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                            APPLICANT: Byrum, Joseph R.
APPLICANT: La Rosa, Thomas J.
APPLICANT: La Rosa, Thomas J.
APPLICANT: La Rosa, Thomas J.
APPLICANT: Thompson, Michael D.
TITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associated with
TITLE OF INVENTION: Plants
FILE OF INVENTION: Plants
FILE REFERENCE: 38-23(15401)B
CURRENT APPLICATION NUMBER: US/09/878,574
CURRENT FILING DATE: 2001-12-21
PRIOR APPLICATION NUMBER: 09/333,535
PRIOR FILING DATE: 1999-06-14
358 TTCGTCGCTCCGGGTGAGGAGTCCTCCCGCTACGCCATCATTGTCGGCGGAGCCAACCTTC 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           538 TACCC 542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          358 TICGICGCTCCGGGTGAGGAGTCCTCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTC 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  183 GTCTC 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      123 GTGGTCGCGGATTCGTGCGCTACGATCTTCTTTCGGGACTCCGTGGAGACCGGCTAGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     418 GGGTGCGGTTCCTCTCGCGAGCACGCGCCCGTCGCGCTTGGGGCCCCCTGGCGCACGCGCC 477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          63 GETTGCAGCTCCTCCCGCGAGCACGCGCGCGCGCGCTGGGCGCGCCTCAGGCGCCGCCGCCA 122
                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3 TACATCGAATCCGGCGAGATCAAAGTCAAGTACGCCATCGTCATCGGCGGTGCCACCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATTGTTGCSGAGGGCTACGCGCGCATCTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            125;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                        Conservative
                                                                                         8.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8.7%;
                                                                     Score 88.8; DB 10;
Pred. No. 5.9e-15;
1; Mismatches 58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 90.2; DB 10; Pred. No. 2.7e-15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            59;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                              Length 185;
                                                                     Indels
                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   62
                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
```

```
; Prior application data removed - consult PALM or file wrapper NUMBER OF SEQ ID NOS: 348 ; SOETWARE: PatentIn Ver. 2.0 ; SEQ ID NO 18 ; LENGTH: 217 ; TYPE: DNA ; ORGANISM: Homo sapiens US-09-764-846-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 14
US-09-764-846-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QΥ
밁
                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; TYPE: DNA; Homo sapiens US-10-091-483-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 13
US-10-091-483-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                    Sequence 18, Application US/09764846 Patent No. US20020102638A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 18, Application US/10091483 Publication No. US20030049650A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQ ID NO 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local :
                                                                       Matches
                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION NUMBER: US/10/091,483
CURRENT FILING DATE: 2002-03-07
NUMBER OF SEQ ID NOS: 348
                                                                                                                                                                                                                                                                                 CURRENT APPLICATION NUMBER: US/09/764,846 CURRENT FILING DATE: 2001-01-17
                                                                                                                                                                                                                                                                                                                     APPLICANT: Rosen et al.
TITLE OF INVENTION: Nucleic Acids, Proteins,
FILE REFERENCE: PTZ12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Prior Application removed - See File Wrapper or Palm SOFTWARE: PatentIn Ver. 2.0\,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: Nucleic Acids, Proteins, and Antibodies FILE REFERENCE: PTZ12C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Rosen et al
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          478 ATTGTTGCSGAGGGCTACGCGCGCATCTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTG 537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           916 TITITITGTTACTAGTACTTGTACAATTGTACTCCTGCCTGCCTACTGTTCTTATCTGTTTG 975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             916 TITTTTGTTACTAGTACTTGTACAATTGTACTCCTGCCTGCTACTGTTTCTTATCTGTTTG 975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         123 GTGGTCGCGGATTCGTACGCTACGATCTTCTTTCGGAAGTCCGTGGCCACCGGCGAGGTG 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    976 ААТВАСТССТСТСТТСССАВЬВАВЬВАВАВАВАВАВАВАВАВАВАВАВАВАВАВ 1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 183 TA 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    538 TA 539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           y Match 6.2%;
Local Similarity 71.2%;
hes 84; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3 TTCATCTAGTGTGGCGAGATCATTGCCAAGTACGCCAACGTCAACGCGGGGGGCCAACTTC
 217
                                                                       Conservative
                                                                                     6.2%;
71.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                   Score 63.6; DB 10;
Pred. No. 5.9e-08;
0; Mismatches 34;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 63.6; DB 9;
Pred. No. 5.9e-08;
0; Mismatches 34;
                                                                                                                                                                                                                                                                                                                                       and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 217;
                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                   Gaps
                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
```

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Run
                                                                                                                                                                                                                                                                                                                                                                                                                         Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OM nucleic -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Post-processing:
                                       O
  O
                   C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            on:
                                                                                                                Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                             Score
  910.4
570.6
536.6
533.8
526.6
493
                                                                                                                                                                                                                                                                                                                                                                                                                         ••
                                                                                                                                                         nucleic search, using sw model
                                                                   Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-027-450-46
1033
1 atcatggcggcggc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       April 3, 2003, 02:53:39; Search time 1498 Seconds (without alignments) 11168.183 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  16154066 seqs, 8097743376 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                           Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                     gb_est1:*
                                                                                                                                                       em_gss_other:*
em_gss_pro:*
em_gss_rod:*
                                                                                                                                                                                                        em_gss_inv:*
em_gss_pln:*
em_gss_vrt:*
em_gss_fun:*
                                                                                                                                                                                                                                                                                                                                                        em_estpl:*
em_estro:*
                                                                                                                                                                                                                                                                                                                                                                          em_estmu:*
em_estov:*
                                                                                                                                                                                                                                                                                                                                                                                                       em_esthum: *
                                                                                                                                                                                                                                                                                                                                                                                                                em_estba:*
                                                                                                                                                                                                                                                                                                                                                em_htc:*
                                                                                                                                                                                                                                                                                                                                                                                              em_estin:*
                                                                                                                                                                                                                                                                                                                  gb_est2:*
gb_htc:*
                                                                                                                                                                                    em_gss_mam:*
em_gss_mus:*
                                                                                                                                                                                                                                                         gb_gss:*
                                                                                                                                                                                                                                                                 em_estom:*
                                                                                                                                                                                                                                                                                     gb_est5:*
                                                                                                                                                                                                                                               em_gss_hum:*
                                                                                                                                                                                                                                                                             em_estfun:*
                                                                                                                                                                                                                                                                                                gb_est4:*
                                                                                                                                                                                                                                                                                                         gb_est3:*
                                                                   Length DB
 1085
571
546
589
556
568
  10
 AY109732
AI977840
AI820332
AI833533
BE510562
                                                                     IJ
                                                                                                 SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                32308132
AY109732 Zea mays
AI977840 496028H06
AI820332 605091F07
AI833533 605091F07
BE510562 946053G08
BE510561 946053G08
                                                                   Description
                                                                 JOURNAL
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                               REFERENCE
AUTHORS
                                                                                                                                                                                                                                                       RESULT 1
AY109732
LOCUS
                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                        იი
                                                                                                                                                                                                                                                                                                                                                                                                                 C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                O
```

ALIGNMENTS

## DEFINITION ACCESSION VERSION KEYWORDS SOURCE ORGANISM Overgo Probes Unpublished (2002) 2 (bases 1 to 1085) Coe,E.C. Zea mays CL1042\_1 mRNA sequence. AY109732 AY109732.1 GI:21213564 HTC. Direct Submission Direct Submission Submitted (25-APR-2002) Maize Mapping Project, University Missouri, Columbia, MO 65211, USA Location/Qualifiers 1, 1085 Zea mays. Zea mays 1 (bases 1 to 1085), Miao,G.H., Vogel,J.M., Whitsitt,M.S., Hainey,C.F., Dolan,M., Miao,G.H., Vogel,J.M., Whitsitt,M.S., Arthur,L.W., Hanafey,M., Mozgante,M. and Tingey,S.V. Maize Mapping Project/DuPont Consensus Sequences for Design of Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACC clade; Panicoideae; Andropogoneae; Zea. /organism="Zea mays" /db\_xref="MaizeDB:629913" /db\_xref="taxon:4577" /clone="CL1042\_1" mRNA linear HTC 25-MAY-2002 $^{\rm of}$

TITLE

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                 γo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                  밁
                                                                                                          Qy
                                                                                                                                           밁
                                                                                                                                                                QY
                                                                                                                                                                                                 밁
                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                               밁
 Ş
                              B
                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                              368
                                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                    809
                                                                                                                                                                                                                                                          548
                                                                                                                                                                                                                                                                                                                488
                                                                                                                                                                                                                                                                                                                                           481
                                                                                                                                                                                                                                                                                                                                                                        428
                                                                                                                                                                                                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
 836
                                                                                    728
                                                                                                               721
                                                                                                                                             899
                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATCATGGCGGCGCTCTGTCGGGGACGGCGGTGTCCACGGCAGCGCTTCTAGCCCCAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTAAAATGCCGCCGCGCTGGGTCCATCGTCCCCGCGGCCGCTGCTGCCGCGGGGGGGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGAGCTCCAACCAGCGCGTTTATCCGGCGCGCTCCCAGCTCACCTGTCATCGCCTCCACTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGAGCTCCAACCAGCGCTTTATCCGGCGCTCCCAGCTCACCTGTCATCGCCTCCACTCA 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATCATGGCGGCGCTCTGTCGGGGACGGCGGTGTCCACGGCAGCGCTTCTAGCCCCAATC
                                                                                                                                                                                                                                                                                                                                                                                                                            GTCGCTCCGGGTGAGGAGTCCTCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGGTCACGCTCCGGGTGAGGAGTCCATCATTGTCGGCGGAGCCAACTTCGGGGTGAGGTCCTCCCGCTACGCCATCATTGTCGGCGAGCCCAACTTCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCAAGCTCGGTTCGCCTTCGCGGGGCTCCCATCCGGGGCCTACCCGACGCCGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCGACCAGATCATCCCCGCCGAGCACCTCACTCTGGTGCCCTCCAAGCCGGGACGAGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCGACCAGATCATCCCCGCCGAGCACCTCACTCTGGTGCCCTCCAAGCCGGACGAGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTGGACCTTGCTAACTCCGTTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAA
                                                                                                                                                                                                                                                                        CCTCTGGAGCTCACGGACGTTGGGGCCTGGAAGGAGTGCAAGACACGGGATGTGGTCACC
                                                                                                                                                                                                                                                                                                                               GTTGCSGAGGGCTACGCGCGCATCTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTAC
                                                                                                                                                                                                                                                                                                                                                                     CGCAAGCTCGGTTCCTTCGCCGTCGGGGGCTCCCATCCGGGGCCTACCCGACGCCGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTCGACGGTGTCTCAAAATAAGTTGCGGCCTACCGAAATTATGATGAATCAATTTG
                                                                                                                                                                                                   CCTCTGGAGCTCACGGACGTTGGGGCCTGGAAGGAGTGCAAGACAGGGGGATGTGGTCACC
                                                                                                                                                                                                                                                                                                                GTTGCGGAGGGCTACGCGCGCATCNNNNNNCGCAACTCCGTGGCCACTGGGGAAGTGTAC
                                                                                                                                                                                                                                                                                                                                                                                                   TGCGGTTCCTCGCGAGCACGCGCCCGTCGCGCTTGGGGCCGCTGGCGCACGCGCCATT
                              CTCTGCGGAGATGAAGAAGTAAGCTGGAGTTAGGACTAAGAGTTACTGCACCTACTTGAT
                                           CTCTGCGGAGATGAAGAAGTAAGCTGGAGTTAGGACTAAGAGTTACTGCACCTACTTGAT
                                                                                     ACAGGAATGATTGCGTCGAAAGCTGCTGCATGAGGGAAAGATCAGCTTAGGCAGCCGAGC
                                                                                                   ACAGGAATGATTGCGTCGAAAGCTGCTGCATGAGGGAA----AGCTTATGCAGCCGAGC
                                                                                                                                             CCAATTGGTGATGCCCGGTAATTGAGGCCGGAGGGATCTTTGCCTACGCCCGGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note=*this sequence is part of a project of EST assemblies resulting from the application of public contigs to seed DuPont contigs; this resource was assembled by DuPont as part of a collaboration for the overgo addressing of BACs in conjunction with the Maize Mapping Project*

a 303 c 295 g 239 t 45 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone_lib="Maize Mapping Project/DuPont Cornsensus Library"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             88.1%;
94.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 910.4; DB 11;
pred. No. 1.4e-136;
1; Mismatches 52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               67
                                                                                                                                                                                                                                                                                                                                                                                                                                                             420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                                                                            487
                                                                                                                                                                                                                                                                                                                                                                                                      480
                                                                                                                                                                                                                                                                                                                                                                                                                                  427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                307
                                                                                                                                                                                                       667
                                                                                                                                                                                                                                  660
                                                                                                                                                                                                                                                             607
                                                                                                                                                                                                                                                                                          600
                                                                                                                                                                                                                                                                                                                     547
                                  847
                                                                                        787
                                                                                                                                                 727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2
```

Qy 밁 δÃ Вþ δõ 밁 QΥ В δÃ

```
ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 2
AI977840/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                         BASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCUS
                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                         δÃ
                                                                 밁
                                                                                 Qy
                                                                                                            DЬ
                                                                                                                                Qy
                                                                                                                                                       멍
                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                ORIGIN
γ
                     Вþ
                                                                                                                                                                                                  Query Match
Best Local S
Matches 570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                          COUNT
                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 848
                                                                                                                                                       451
                                                                                                                                   471
                       391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTCTTTGTCACAGATCGTTTTTTTTTTTTACTAGTA--CTTGTACAATTGTACTCCTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGCTACTGTTCTTATCTGTTTGAATAACTGCTCTGTTGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTCTTTGTCACAGATCGNNNNNNNNGTTACTAGTAAGCTTGTACAATTGTACTCCTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGCTACTGTCCTTATCTGTTTGAATAACTGCTGTGTTGCCA
                     ACGCGCCATTGTTGCGGAGGGCTACGCGCGCATCTTTTTTCGCAACTCCGTGGCCACTGG
                                                                                                                       ACGCGCCATTGTTGCSGAGGGCTACGCGCGCATCTTTTTTCGCAACTCCGTGGCCACTGG
                                                                             AGAGGTGTACCCTCTGGAGCTCACGGACGTTGGGGCCTGGAAGGAGTGCAAGACAGGGGA
 AGAGGTGTACCCTCTGGAGCTCACGGACGTTGGGGCCTGGAAGGAGTGCAAGACAGGGGA
                                                                                                                                                                                                      570;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            571 bp ...υνωσΗυδ.x1 496 - stressed shoot Lab Zea mays cDNA, mRNA sequence. A1977840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Contact: Walbot V
Department of Biological Sciences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACC clade; Panicoideae; Andropogoneae; Zea.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Zea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AI977840.1
                                                                                                                                                                                                                                                                                                                                                                                                        Email: walbot@stanford.edu
Plate: 496028 row: H col
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Stanford University
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Maize ESTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Walbot, V
                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (bases 1 to 571)
                                                                                                                                                                                                                                                                                                                                                                                                                              California Ave, Palo
: 650 723 2227
:: 650 725 8221
                                                                                                                                                                                                                                                            150
                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                           /note="Organ: shoot; Vector:
Wang/Bohnert"
162 c 135 g 124 t
                                                                                                                                                                                                                                                                                                                    Wang/Bohnert lab"
                                                                                                                                                                                                                                                                                         /tissue_type="seedling"
/dev_stage="salt stress"
/lab_host="E.coli XL Gold"
                                                                                                                                                                                                                                                                                                                                                                                           6028 row: H column:
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                       /db_xref="taxon:4577"
/clone_lib="496 - str
                                                                                                                                                                                                                                                                                                                                                              /organism="Zea mays"
/cultivar="B73"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       from various
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GI:5791048
                                                                                                                                                                                                               55.2%;
                                                                                                                                                                                                      1;
                                                                                                                                                                                                      Pred. No. 4.40
1; Mismatches
                                                                                                                                                                                                               Score 570.6; DB 9
Pred. No. 4.4e-82;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cDNA libraries
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alto,
                                                                                                                                                                                                                                                                                                                                                                                                           90
                                                                                                                                                                                                                                                                                                                                                                                                                                                     CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cDNA library
                                                                                                                                                                                                                                                                                                                                                                                                                                                       94304,
                                                                                                                                                                                                                                                                                                                                         shoot
                                                                                                                                                                                                                                                                                  pBluescriptII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sequenced at
                                                                                                                                                                                                                           9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1008
                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  994
                                                                                                                                                                                                                                                                                                                                                                                                                                                        USA
                                                                                                                                                                                                                                                                                                                                           CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            from
                                                                                                                                                                                                                               571;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Stanford
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EST 27-AUG-19
Wang/Bohnert
                                                                                                                                                                                                                                                                                    SK(+)
                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27-AUG-1999
                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                     XR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      907
                                                                                            590
                                                                                                                                       530
                                                                                                                                                               512
                                                                                                                                                                                    470
                                                650
                                                                       392
                                                                                                                   452
                            332
                                                                                                                                                                                                          0;
```

```
ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 3
AI820332
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                밁
                                 γQ
                                                                                                                   BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              . B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   · B
                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                 Query Match
Best Local S
Matches 539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           331
                                        67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   91
                  _
            GCCTGCTACTGTTCTTATCTGTTTTGAATAAC 981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGCCCGGAAGACACGAATTGATTGCGTCGAAAGCTGCTGCATGAGGGGAAAGCTTATGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTTGGTCTTTGTCACAGATCGTTTTTTTTTTTGTTACTAGTACTTGTACAATTGTACTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCCCGGAAGACAGGAATGATTGCGTCGAAAGCTGCTGCATGAGGGAAAGCTTATGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATTTGGTCTTTGTCACAGATCGTTTTTTTTTTTACTAGTACTTGTACAATTGTACTCCT
                                                                  1 Similarity
539; Conser
                                                                                                                                                                                                                                                                                                                            Stanford University
855 California Ave, Palo Alto,
Tel: 650 723 227
Fax: 650 725 8221
                                                                                                                                                                                                                                                                                                                                                                            Unpublished (1999)
Contact: Walbot V
Department of Biological Sciences
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Viridiplantae; Streptophyta; En
Spermatophyta; Magnoliophyta; Liliopsida;
clade; Panicoideae; Andropogoneae; Zea.
1 (bases 1 to 546)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cDNA, mRNA sequence.
AI820332
AI820332.1 GI:54394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AI820332 546
605091F07.yl 605 - Endosperm
                                                                                                                                                                                                                                                                                                                                                                                                                    University
                                                                                                                                                                                                                                                                                                                                                                                                                               Maize ESTs from various
                                                                                                                                                                                                                                                                                                                                                                                                                                             Walbot, V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Zea mays.
                                                                                                                                76
                                                                  Conservative
                                                                                                                                                                                                                                                                                                walbot@stanford.edu
605091 row: F col
                                                                                                                                þ
                                                                                                                                                              /Organism="Zea mays"
/Cultivar="0hio43"
/Gultivar="0hio43"
/db_xref="faxon:4577"
/clone_lib="605 - Endosperm cDNA library from Schmi/tissue_type="nucellar, embryo, and endosperm"
/dev_stage="10-14 days post-pollination"
/lab_host="0H5(alpha)"
/note="Organ: Kernel; Vector: pAD-GAL4-2'; Site_1:
/note="Organ: Kernel; Vector: pAD-GAL4-2'; Site_1:
                                                                                                                                                       /note="Organ: Kernel; Vector: |
Site_2: XhoI; Kernel endosperm
                                                                                                                                             lab
                                                                                                                                                                                                                                                                                  5091 row: F column:
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GI:5439411
                                                                                                                               201 c
                                                                            51.9%;
98.7%;
                                                                                                                              167 g
                                                                            Score 536.6; DB 9
Pred. No. 1.2e-76;
                                                                                                                                                                                                                                                                                                                                                                                                                                 cDNA libraries
                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  bp mRNA line
                                                                                                                                                                                                                                                                                                                                                     CA
                                                                                                                               101
                                                                                                                                                                                                                                                                                                   07
                                                                                                                                                                                                                                                                                                                                                     94304, USA
                                                                                                                               rt
                                                                                        9;
                                                                 6;
                                                                                                                                                                                                                                                                                                                                                                                                                               sequenced
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Embryophyta; Tracheophyta; a; Poales; Poaceae; PACC
                                                                                                                                                       cDNA library
                                                                                                                              \vdash
                                                                 Indels
                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear EST 02-FEB-2000 from Schmidt lab Zea mays
                                                                                                                               others
                                                                                                                                                                                                                                                                                                                                                                                                                               at
                                                                                          546;
                                                                                                                                                                                                                                                                                                                                                                                                                               Stanford
                                                                                                                                                        Site_1: EcoRI;
from Schmidt
                                                               0;
                                                                                                                                                                                                                     Schmidt lab"
                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 32
                                                               0;
                                                                                                                                                                                                                                                                                                                                                  VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 4
AI833533/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ρ
                                                                                                                                                                                                                      COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                               LOCUS
                                                                                                                                                                                                                                                          AUTHORS
TITLE
                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGCTCACGGACGTTGGGGCCTGGAAGGAGTGCAAGACAGGGGATGTGGTCACCGTGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGGGCTACGCGCGCATCTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTACCCTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGGGTGAGGAGTCCTCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGTGCGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTCGGTTCCTTCGCCTTCGCGGGGCTCCCATCCGCGGCCTACCCGACGCCGNTCGTCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTCGGTTCCTTCGCCTTCGCGGGGCTCCCATCCGCGGCCTACCCGACGCCGTTCGTCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCGTCGTCAGCCGTTTTTCCACGGCGAGTGCTTCGTGGTGGGCGACAATATCGACACCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGCCGCCGCGCTGGGTCCATCGTCCCCCGCGGCCGCTGCTGCCGCGGCGGCAGCAGCTCG
                                                                                                                                                  Contact: Walbot V
Contact: Walbot V
Department of Biological S
Stanford University
855 California Ave, Palo A
Tel: 650 723 2227
Fax: 650 725 8221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTTGCT 612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAGGGCTACGCGCGCATCTTTTTCGCAACTCCGTGGCCACTGGGGAAGTGTACCCTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCCTCTCGCGAGCACGCGCCGTCGCGCTTGGGGGCCGCTGGCGCACGCGCCATTGTTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCCTCTCGCGAGCACGCGCCCGTCGCGCTTGGGGCCCGCTGGCGCACGCGCCATTGTTGCS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAGATCATCCCCGCCGAGCACCTCACTCTGGTGCCCTCCAAGCCGGACGAGTACCGCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCGTCGTCAGCCGTTTTCCACGGCGAGCGCGTTCGTGGTGGGCGACAATATCGACACCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGCCGCCGCGCTGGGCCCATCGTCCCCGCGGCCGCTGCTGCCGCGGCGGCCAGCAGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                               AI833533 589 bp mRNA linear EST 02-FEB-2000 605091F07.x2 605 - Endosperm cDNA library from Schmidt lab Zea mays
                                                                                                                                                                                                                    Unpublished (1999)
Contact: Walbot V
                                                                                                                                                                                                                                                         Walbot, V.

Maize ESTs from various cDNA libraries sequenced
                                                                                                                                                                                                                                                                                  Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnollophyta; Liliopsida; Poales; Poaceae; PACC clade; Panicoideae; Andropogoneae; Zea.

1 (bases 1 to 589)
                                                                                                                                                                                                                                                                                                                                                                                         cDNA, mRNA sequence. AI833533
                                                                                                                                                                                                                                                                                                                         Zea mays
Eukaryota;
                                                                                                                                                                                                                                                                                                                                                                            AI833533.1
                                                                                                                                                                                                                                              University
                                                                                                                                                                                                                                                                                                                                                   Zea mays.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              546
                                                                                                                              walbot@stanford.edu
605091 row; F col
                                                /organism="2ea mays"
/cultivar="Ohio43"
/db_xref="taxon:4577"
/clone_lib="605 - Endo
           /clone_lib="605 - Endosperm cDNA library /tissue_type="nucellar, embryo, and endos /dev_stage="10-14 days post-pollination" /lab_host="DH5(alpha)"
                                                                                                             Location/Qualifiers
 /note="Organ: Kernel;
                                                                                                                                                                                                                                                                                                                                                                            GI:5455843
                                                                                                                                                                                Alto,
                                                                                                                                                                                                         Sciences
                                                                                                                                                                                CA
Vector: pAD-GAL4-2';
                                                                                                                              07
                                                                                                                                                                                94304,
                                                                                                                                                                                USA
                                     endosperm"
                                                                                                                                                                                                                                                          at
Site_1:
                                                                                                                                                                                                                                                          Stanford
                                                 Schmidt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     186
 ECORI
```

prepared from

bу

Schmidt

vegetative

the

CDNA ďď

```
VERSION
KEYWORDS
                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                      SOURCE
ORGANISM
                                                                                                                                                                                                                                                                         RESULT 5
BE510562
                                                    JOURNAL COMMENT
                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                  DEFINITION
                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            585
                                                                                                                                                                                                                                                                                                                                                   950
                                                                                                                                                                                                                                                                                                                                                                             105
                                                                                                                                                                                                                                                                                                                                                                                                      894
                                                                                                                                                                                                                                                                                                                                                                                                                               165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              599
                                                                                                                                                                                                                                                                                                                           45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCTCTGCGGAGATGAAGAAGTAAGCTGGAGTTAGGACTAAGAGTTACTGCACCTACTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TIGITICCGGAGGCTACCCGCGCATCTTTTTCGCAACTCCGTGGCCACTGGGGAAGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGTGCGGTTCCTCTCGCGAGCACGCGCCCGTCGCGCTTGGGGCCGCTGGCGCACGCGCCA 478
                                                                                                                                                                                                                                                                                                                                                                          CCGTGGACCTTGCTAACTCCGTTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGA
                                                                                                                                                                                                                                                                                                                        AGACAGGAATGATTGCGTCGAAAGCTGCTGCATGAGGGAAAGATCAGCTTAGGCAGCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AACCAATTGGTGATGCTGGCCCTGTAATTGAGGCCGGAGGGATCTTTGCCTACGCCCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGTGGACCTTGCTAACTCCGTTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCCTCTGGAGCTCACGGACGTTGGGGCCTGGAAGGAGTGCAAGACAGGGGATGTGGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTGTTGCSGAGGGCTACGCGCGCATCTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGGTCGGTTCCTCTCGCGAGCACGCGCCCCGTCGCGCTTGGGGGCCCCTGGCGCACGCGCCA
 University
Unpublished (1999)
Contact: Walbot V
Department of Biological s
Stanford University
855 California Ave, Palo F
Tel: 650 723 2227
                                                                                                                                                                                             946053G08.y1 946 - tassel | mays cDNA, mRNA sequence. BE510562 BE510562.1 GI:9731810 EST.
                                                                                                                                                                                                                                                                                                                                                                                                                               AGACAGGAATGATTGCGTCGAAAGCTGCTGCATGAGGGAA----AGCTTATGCAGCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCCTCTGGAGCTCACGGACGTTGGGGGCCTGGAAGGAGTGCAAGACAGGGGGATGTGGTCA
                                                                                                                                                                    Zea mays.
Zea mays
                                                                                                                             Eukaryota; Viridiplantae; Streptophyta; El
Spermatophyta; Magnoliophyta; Liliopsida;
clade; Panicoideae; Andropogoneae; Zea.
                                                                                                     Walbot, V.
                                                                                        Maize ESTs from various
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                  (bases 1 to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Site_2:
lab"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            167
                                                                                                                                                                                                                                                946 - tassel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       51.7%;
96.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     XhoI;
               Palo Alto, CA 94304,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         140 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 533.8; DB 9; Pred. No. 3.3e-76;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kernel
                                                                                         cDNA libraries
                                                                                                                                                                                                                                              556 bp mR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                        Sciences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   endosperm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            125
                                                                                                                                                                                                                                                           mRNA
                                                                                                                                                                                                                                               RNA linear prepared by s
                                                                                         sequenced
                                                                                                                                           Embryophyta; Tracheophyta;
a; Poales; Poaceae; PACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cDNA library
               USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                c EST 07-AUG-2000
Schmidt lab Zea
                                                                                         at
                                                                                         Stanford
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Schmidt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 538
                                                                                                                                                                                                                                                                                                                                                                                                    949
                                                                                                                                                                                                                                                                                                                                                                                                                             106
                                                                                                                                                                                                                                                                                                                                                                                                                                                      893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2
                                      RESULT 6
BE510561/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE CO
                                                                                                                                                                                                       망
                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                      ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                        DEFINITION
                                                                                                                       γ
                                                                                                                                                        밁
                                                                                                                                                                              δõ
                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                      541
                                                                                                                                                         481
                                                                                                                                                                                                           421
                                                                                                                                                                                                                                    775
                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                                         600
                                                                                                                                                                                                                                                                                                                                                                                                                                        540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                           361
                                                                                                                                                                                                                                                                                    720
                                                                                                                                                                                                                                                                                                             301
                                                                                                                                                                                                                                                                                                                                        660
                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              360 CGTCGCTCCGGGTGAGGAGTCCTCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 CGTCGCTCCGGGTGAGGAGTCCTCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGCGGTTCCTCTCGCGAGCACGCGCCCGTCGCGCTTGGGGGCCGCTGGCGCACGCGCCAT 479
                                                                                                     GGTCTTTGTCACAGAT 910
                                                                                                                                                                                                                                                                                                           CGTGGACCTTGCTAACTCCGTTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAA 659
                                                                                                                                                                                                                                                                                                                                                                                                                               CCCTCTGGAGCTCACGGACGTTGGGGGCCTGGAAGGAGTGCAAGACAGGGGGATGTGGTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGTTGCGGAGGGCTACGCGCGCATCTTTTTTCGCAACTCCGTGGCCACTGGGGGAAGTGTA
                                                                                                                                                      CCTCTGCGGAGATGAAGAAGTAAGCTGGAGTTAAGGACTAAGAGTTACTGCACCTACTTGA
                                                                                                                                                                                                                                                             GACAGGAATGATTGCGTCGAAAGCTGCTGCATGAGGGAAAGATCAGCTTAGGCAGCCGAG
                                                                                                                                                                                                                                                                         GACAGGAATGATTGCGTCGAAAGCTGCTGCATGAGGGAA----AGCTTATGCAGCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                  CCCTCTGGAGCTCACGGACGTTGGGGCCCTGGAAGGAGTGCAAGACAGGGGATGTGGTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGTTGCSGAGGGCTACGCGCGCATCTTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCTCTGCGGAGATGAAGAAGTAAGCTGGAGTTAGGACTAAGAGTTACTGCACCTACTTGA
BE510561
946053G08.x1 9
mays cDNA, mRb
BE510561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          650 725 8221
l: walbot@stanford.edu
e: 946053 row: G col
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="2ea mays"
/cultivar="0H43"
/db_xref="taxon:4577"
/clone_lib="946 - tass
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="Organ: tassels; Vector: HybriZAP; Site_1: Site_2: XhoI; George Chuck dissected immature tas between 1mm and 3mm. Sharon Stanfield prepared library in HybriZAP. Sample insert size range v to 3 Kb with a 1 Kb average."

141 c 170 g 125 t 1 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /tissue_type="tassels"
/dev_stage="just after the
inflorescence development"
/lab_host="XLOLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6053 row: G column:
Location/Qualifiers
               mRNA sequence
                        946 - tassel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     51.0%;
97.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 526.6; DB 1
Pred. No. 4.9e-75;
1; Mismatches (
                       568 bp mRi
primordium |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tassel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                primordium
                                        mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            transition
                          prepared
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10;
```

599 180

240

linear red by :

r EST 07-AUG-2000 Schmidt lab Zea

834

420 774

480

540 894 Qy

Вþ δÃ В Дb QY 멍 Qy 밁 Qγ Вþ Ωy В

Indels Length

5

Gaps

419

60

Qy

Ωy

Qy 뮍

δõ В

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VERSION
KEYWORDS
                Š
                                        Д
                                                                       Š
                                                                                                        В
                                                                                                                              δŌ
                                                                                                                                                                  В
                                                                                                                                                                                           Qy
                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                         Qγ
                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                              Вp
                                                                                                                                                                                                                                                                                                                                                                                                                                       οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                 088
                                                                                                                                                                                                                                                                                           448
                                                                                                                                                                                                                                                                                                                      585
                                                                                                                                                                                                                                                                                                                                                     508
                                                                                                                                                                                                                                                                                                                                                                                                                568
                                                                                                                                                                                                                                                                                                                                                                                                                             465 TGGCGCACGCGCCATTGTTGCSGAGGGCTACGCGCGCATCTTTTTTCGCAACTCCGTGGC 524
                                                                                                         268
                                                                                                                                       760
                                                                                                                                                                      328
                                                                                                                                                                                                                              388
                                                                                                                                                                                                                                                            645
                                                                                                                                                                                                                                                                                                                                                                                 525
                                                                                                                                                                                                 705
                                                                                                                                                                                                                                                                                                                                                                                                             TGGCGCACGCGCCATTGTTGCCGAGGGCTACGCGCGCATCTTTTTCGCAACTCCGTGGC 509
TGAATCAATCAATTTGGTCTTTGTCACAGATCGTTTTTT--TTTGTTACTAGTACTTGTA 937
                                                                                                                                                                                 TGCCTACGCCCGGAAGACAGGAATGATTGCGTCGAAAGCTGCTGCATGAGGGAA-----A
                                                                                                                                                                                                                                             CACTGGAGAGGTGTACCCTCTGGAGCTCACGGACGTTGGGGCCTGGAAGGAGTGCAAGAC 584
                                                               ACTGCACCTACCTTGATGTCGACGGTGTCTCAAAATAAGTTGCGGCCTACCGAAATTATGA 879
                                                                                                      GCTTATGCAGCCGAGCCTCTGCGGAGATGAAGAAGTAAGCTGGAGTTAGGACTAAGAGTT 819
                                                                                                                                                                  TGCCTACGCCCGGAAGACAGGAATGATTGCGTCGAAAGCTGCTGCATGAGGGAAAGATCA
                                                                                                                                                                                                                           GGAGTACAAGCTGAAACCAATTGGTGATGCTGGCCCTGTAATTGAGGCCGGAGGGATCTT
                                                                                                                                                                                                                                                                                       AGGGGATGTGGTCACCGTGGACCTTGCTAACTCCGTTTTTATTAACCACACCTCTGGCAA
                                                                                                                                                                                                                                                                                                                   AGGGGATGTGGTCACCGTGGACCTTGCTAACTCCGTTTTTATTAACCACACCTCTGGCAA 644
                                                                                                                                                                                                                                                                                                                                                  CACTGGGGAAGTGTACCCTCTGGAGCTCACGGACGTTGGGGGCCTGGAAGGAGTGCAAGAC
                                           ACTGCACCTACTTGATGTCGACGGTGTCTCAAAATAAGTTGCGGCCTACCGAAATTATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            523;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Email: walbot@stanford.edu
Plate: 946053 row: G column:
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACC clade; Panicoideae; Andropogoneae; Zea.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BE510561.1
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Stanford University
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Department of Biological Sciences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Contact: Walbot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    University
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Walbot, V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Maize ESTs from various
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       California Ave, Palo Alto,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (bases 1 to 568)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          650 723 2227
650 725 8221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="Organ: tassels; Vector: HybrizAP; Site_1: EcoRI; Site_2: XhoI; George Chuck dissected immature tassels between 1mm and 3mm. Sharon Stanfield prepared the cDNA library in HybrizAP. Sample insert size range was 350 by to 3 Kb with a 1 Kb average."

154 c 129 g 130 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Zea mays"
/cultivar="0443"
/db_xref="taxon:4577"
/clone_lib="946 - tassel primordium prepared
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /dev_stage="just after the
inflorescence development"
/lab_host="XLOLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tissue_type="tassels"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GI:9731809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        47.7%;
97.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 493;
Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cDNA libraries sequenced
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 10;
1.1e-69;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       94304,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         transition
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         from vegetative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 аt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        568;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Stanford
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   λq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Schmidt
                                             149
                                                                                                                                                                                              759
                                                                                                                                                                                                                             329
                                                                                                                                                                                                                                                                                                                                                  449
                                                                                                        209
                                                                                                                                                                  269
                                                                                                                                                                                                                                                                                       389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               đđ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 7
AI677354/c
LOCUS
                          멍
                                                γQ
                                                                                 В
                                                                                                        δÃ
                                                                                                                                        Db
                                                                                                                                                                  Q
                                                                                                                                                                                             DЬ
                                                                                                                                                                                                                         20
                                                                                                                                                                                                                                                       Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                QY
                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                            Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                     484
                                                                                  421
                                                                                                                                         481
                                                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          938 CAATTGTACTCCTGCCTGCTACTGTTCTTATCTGTTTGAATAACTGCTCTGTTGCCA 99-
                           361
                                                       724
                                                                                                              664
                                                                                                                                                                   604
                                                                                                                                                                                                541
                                                                                                                                                                                                                            544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    148
                                                                                                                                                       GACCTTGCTAACTCCGTTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCA
                                                                                                                                                                                                                                                    GCSGAGGGCTACGCGCATCTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTACCCT
                                                                                                                                                                                                                CTGGAGCTCACGGACGTTGGGGCCTGGAAGGAGTGCAAGACAGGGGGATGTGGTCACCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGCGGAGATGAAGTAAGCTGGAGTTAGGACTAAGAGTTACTGCACCTACTTGATGTC
                           GGAATGATTGCGTCGAAAGCTGCTGCATGAGGGAAAGATCAGCTTAGGCAGCCGAGCCTC
                                            GGAATGATTGCCTCGAAAGCTGCTGCATGAGGGAA-----AGCTTATGCAGCCAGCCCTC
                                                                                 ATTGGTGATGCTGGCCCTGTAATTGAGGCCGGAGGGATCTTTGCCTACGCCCGGAAGACA
                                                                                                            ATTGGTGATGCTGGCCCTGTAATTGAGGCGGGAGGGATCTTTGCCTACGCCCGGAAGACA
                                                                                                                                        GACCTTGCTAACTCCGTTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCA
                                                                                                                                                                                                CTGGAGCTCACGGACGTTGGGGGCCTGGAAGGAGTGCAAGACAGGGGGATGTGGTCACCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDNA, mRNA:
AI677354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Department of Biological Sciences
Stanford University
855 California Ave, Palo Alto, CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Viridiplantae; Streptophyta; En
Spermatophyta; Magnoliophyta; Liliopsida;
clade; Panicoideae; Andropogoneae; Zea.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tel: 650 723 2227 Fax: 650 725 8221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Contact: Walbot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       University
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Walbot, V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AI677354.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A1677354 605 - Endosperm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Plate: 605053 row: H column: Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Maize ESTs from various
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Zea mays.
                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Email: walbot@stanford.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (bases 1 to 601)
                                                                                                                                                                                                                                                                                                                                                                                     172
                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                             /note="Organ: Kernel; Vector: |
Site_2: XhoI; Kernel endosperm
                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Zea mays"
/cultivar="0hio43"
/db_xref="taxon:4577"
/db_xref="taxon:4577"
/clone_lib="n605 - Endosperm cDNA library
/clone_tib="n05" - Endosperm cDNA library
/tissue_type="nucellar, embryo, and endo
/dev_stage="10-14 days post-pollination"
/lab_host="DHS(alpha)"
                                                                                                                                                                                                                                                                                                                                                                                                lab"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GI:4886234
                                                                                                                                                                                                                                                                                                                                                                                     161 c
                                                                                                                                                                                                                                                                                                                            45.78;
96.98;
                                                                                                                                                                                                                                                                                                               <u>↓</u>↓
                                                                                                                                                                                                                                                                                                                                                                                     129
                                                                                                                                                                                                                                                                                                                            Score 472; DB 9;
Pred. No. 2.6e-66;
                                                                                                                                                                                                                                                                                                                                                                                                                           Kernel; Vector: pAD-GAL4-2'; Site_1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cDNA libraries
                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                  ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         bp mRNA
cDNA library
                                                                                                                                                                                                                                                                                                                                                                                     139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 94304, USA
                                                                                                                                                                                                                                                                                                               6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sequenced
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Embryophyta; Trach
a; Poales; Poaceae;
                                                                                                                                                                                                                                                                                                                                                                                                               cDNA library from
                                                                                                                                                                                                                                                                                                                                       Length 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and endosperm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          from
                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear EST 02-FEB-2000
rom Schmidt lab Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Tracheophyta;
aceae; PACC
                                                                                                                                                                                                                                                                                                               9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Schmidt lab"
                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                               l: EcoRI; Schmidt
838
                                                                                  362
                                                                                                            723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    89
                           302
                                                                                                                                         422
                                                                                                                                                                   663
                                                                                                                                                                                                482
                                                                                                                                                                                                                          603
                                                                                                                                                                                                                                                      542
                                                                                                                                                                                                                                                                                 543
                                                                                                                                                                                                                                                                                                               2
```

В QY 밁 8 멂 QΥ 밁

0;

Gaps

0,

66 285

246

306 525

```
RESULT 8
BE597022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                         BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCTACTGTTCTTATCTGTTTGAATAACTGCTCTGTTGCCA 994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTTGTCACAGATCGTTTTT----TTTGTTACTAGTACTTGTACAATTGTACTCCTGCCTTTTTGTCACAGATCGTACTTGTACAATTGTACTCCTGCCTTTTTTGTTTTGTTTAGTTACTAGTACTTGTACAATTGTACTACTGCTGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTACTGTCCTTATCTGTTTGAATAACTGCTGTTTTGCCA 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Contact: Cordonnier-Pratt MM
Laboratory for Genomics and Bioinformatics
The University of Georgia, Department of Plant Sciences Building, Rm. 2502, Athens,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sorghum bicolor
Sorghum bicolor
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Epermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACC
Spermatophyta; Magnoliophyta; Sorghum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Email: mmpratt@uga.edu
Sequences have been trimmed
below Phred quality 16. The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ,L.H.
An EST database from Sorghum:
Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PI1_60_D05.b1_A002 Pathogen mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      clade; Panicoideae; Andropogoneae;
1 (bases 1 to 534)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POLYA-No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tel: 706 542 1860 Fax: 706 583 0210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cordonnier-Pratt, M.-M., Gingle, A., Dean, R., Sudman, M. and Pratt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BE597022.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            primer: JEN REV
                                                           95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       quality sequence stop: 533
                                                                                                                                                    /clone_llb="Pathogen induced 1 (PII)"
/clone_"llb="pathogen induced 1 (PII)"
/note="Organ: Anthracnose-infected leaves from
/note="Organ: Anthracnose-infected leaves from
two-week-old sorghum plants 48 hr after inoculation;
Vector: pBluescript II from Lambda Zap II; Site_1: XhoI;
Site_2: EcoRI; Two-week-old sorghum plants (BTX 623
cultivar) were infected with pathogen (isolate FRM4I of
Collectrichum graminicola, which is a sorghum isolate).
RNA was prepared from infected leaves harvested from 45
seedlings 48 hours after inoculation. Note: young
seedlings (2 weeks old) exhibit juvenile resistant
reaction, which is an incompatible interaction. As they
grow older (4 weeks or older), plants resume susceptiblity
to anthracnose disease. The library was made from poly-A
RNA in the cloning vector lambda ZAP II. Clones to be
                                                             ρ
                                                                                             sequenced were prepared by mass excision. WARNING: While most or all ESTs are expected to derive from the host plant, no effort was made to eliminate ESTs deriving from
                                                                              the
                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Sorghum bicolor"
/db_xref="taxon:4558"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GI:9852095
                                                         pathogen.
173 c
  45.7%;
  Score 471.6;
                                                             167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       534 bp mRNA linear EST 18-AUG-2000 gen induced 1 (PI1) Sorghum bicolor cDNA,
                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Department of Plant n. 2502, Athens, GA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                to exclude PolyA, vector and regions threshold for highest quality sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               pathogen-induced
                                                           99
                                                           т
  DB
  10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  lant Biology
GA 30602-7271,
  Length 534;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               plants
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            242
                                                                                                                                                                                                                                                                             TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BE360232
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity 93...
Matches 492; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               706 GCCTACGCCCGGAAGACAGGAATGATCGCTTCCAAAAGCTGCTGCATGA 753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             586 GGGGATGTGGTCACCGTGGACCTTGCTAACTCCGTTTTTATTAACCACACCCTCTGGCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            286 AAGCCGGACGAGTACCGCAAGCTCGGTTCCTTCGCCTTCGCGGGGCTCCCATCCGCGGCC 345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      226 GGCGACAATATCGACACCGACCAGATCATCCCCGCCGAGCACCTCACTCTGGTGCCCTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAGCCAACTTCGGGTGCGGTTCCTCTCGCGAGCACGCGCCCGTCGCGCTTGGGGCCGCT 465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGAGCCCGCCGTCGTCGCGGAGGGCTACGCGCGCATCTTCTTCCGCAACTCCGTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACTGGAGAGGTGTACCCTCTGGAGCTCACGGACGTTGGGGCCTGGAAGGAGTGCAAGACA 585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACTGGAGAGGTGTACCCTCTGGAGCTCACGGACACTGGAGCCTGGAAGGAGTGCAAGACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGCGCACGCCATTGTTGCSGAGGGCTACGCGCGCATCTTTTTCGCAACTCCGTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGGCCAACTTCGGGTGCGGCTCCTCCCGCGAGCACGCGCCCGTCGCGCTTGGGGCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TACCCGACGCCGTTCGTCGCCCCCGGGTGAGGAGTCCACCCGCTACGCCGTCGTCGTCGGT 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TACCCGACGCCGTTCGTCGCTCCGGGTGAGGAGTCCTCCCGCTACGCCATCATTGTCGGC 405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGCGACAACATCGACACCGACCAGATCATCCCCGGGGGGCACCTCACTCTGGTGCCCTCC
                                                                                                                Email: mmpratt@uga.edu
Sequences have been trimmed to exclude PolyA, vector and regions
below Phred quality 16. The threshold for highest quality sequence
                                                                                                                                                                                                                 Laboratory for Genomics and Bioinformatics
The University of Georgia, Department of Plant
Plant Sciences Building, Rm. 2502, Athens, GA
                                                                                                                                                                                                                                                                                                                 An EST database from Sorghum:
                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnolkophyta; Liliopsida; Poales; Poaceae; PACC clade; Panicoideae; Andropogoneae; Sorghum.

1 (bases 1 to 564)
                                                                                                                                                                                                                                                                                                                                                                                                                                                          sorghum.
Sorghum bicolor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BE360232
BE360232.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BE360232 564 |
DG1_62_G01.b1_A002 Dark Grown
                                                                                                                                                                             Tel: 706 542 1860 Fax: 706 583 0210
                                                                                                                                                                                                                                                                             Contact: Cordonnier-Pratt MM
                                                                                                                                                                                                                                                                                                Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                           Cordonnier-Pratt, M. - M., Gingle, A., Marsala, C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sequence.
                                                       Seq primer: JEN REV
High quality sequence
Location/Qualifiers 1. .564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GI:9301789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               93.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pred. No. 3.10
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             564 bp
Grown 1
                                                                                                                                                                                                                                                                                                                   dark-grown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.1e-66;
ches 35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mRNA linear EST 20-JUL-2000 (DG1) Sorghum bicolor cDNA, mRNA
                                                                                                                                                                                                                                                                                                                     seedlings
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                      t Biology
30602-7271,
                                                                                                                                                                                                                                                                                                                                                             Sudman, M. and Pratt
```

486

426 645 366

USA

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                               SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 10
AW677919
                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local
                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTAAAATGCCGCCGCGCTGGGTCCATCGTCCCCGCGGCCGCTGCTGCCGCGGCGGC---GC 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGAGCTCCAACCAGCGCGTTTATCCGGCGCTCCCAGCTCACCTGTCATCGCCCTCCACTCA 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTCGTCGCTCCGGGTGAGGAGTCCTCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TACCGCAAGCTCGGTTCCTTCGCCCTTCGCCGGGCTCCCATCCGGCGGCCTACCCGACGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGCAGCTCGCCGTCGTCAGCCGTTTTCCACGGCGAGTGCTTCGTGGTGGGCGACAATATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATCATEGCGGCGCTCTGTCGGGGACGGCGGTGTCCACGGCAGCGCTTCTAGCCCCAATC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTCGTCGCGGAGGGCTACGCGCGCATCTTCTTCCGCAACTCCGTGGCCACTGGAGAGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTGTTGCSGAGGGCTACGCGCGCATCTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGGTGCGGTTCCTCGCGAGCACGCGCCCCGTCGCGCTTGGGGCCCCTGGCGCACGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTCGTCGCCCCGGGTGAGGAGTCCACCCGCTACGCCGTCGTCGTCGGTGGGGCCAACTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TACCGCAAGCTCGGCTTCTTTGCCTTCGCGGGGCTCCCCTCCGCGGCCTACCCGACGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GACACCGACCAGATCATCCCCGCCGAGCACCTCACTCTGGTGCCCTCCAAGCCGGACGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATCATEGCGGCTGCTCCGTCGGCGACGGCGGTGTCCACGGCGCGCTTCTAGCCCCAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGCAGCTCCCCGTCGTCTGCCGTTTTCCACGGCGAGTGCTTTGTGGTGGGCGACAACATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      al Similarity
497; Conserv
                                                                                                                                                                                                                                                                                                                                                                                   AW677919
WS1_12_D01.b1_A002 W
mRNA sequence.
AW677919
Unpublished (2000)
Contact: Cordonnier-Pratt MM
Contacty for Genomics and Bioinformatics
The University of Georgia, Department of Plant Biology
Plant Sciences Building, Rm. 2502, Athens, GA 30602-7271, USA
                                                                                                                                                                  Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACC clade; Panicoideae; Andropogoneae; Sorghum.

1 (bases 1 to 566)
Cordonnier-Pratt, M.-M., Gingle, A., Marsala, C., Sudman, M. and Pratt
                                                                                                                                                                                                                                                                                               Sorghum bicolor
                                                                                                                            An EST database from Sorghum:
                                                                                                                                                                                                                                                                                                                   sorghum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /Organism="Sorghum bicolor"
//db_xref="taxon:4558"
/clone_lib="Dark Grown 1 (DG1)"
/note="Organ: 5-day-old dark-grown seedlings; Vector:
/note="Organ: 5-day-old dark-grown seedlings; Vector: 5-day-old dark-grown seedlings; Vector:
/note="Organ: 5-day-old dark-grown seedlings; Vector: 5-day-old dark-grown seedling
                                                                                                                                                                                                                                                                                                                                                                   GI:7551634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           44.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                   566 bp
Water-stressed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 461.2; DB 10;
Pred. No. 1.4e-64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                          566
                                                                                                                            water-stressed
                                                                                                                                                                                                                                                                                                                                                                                                                                mRNA linear
1 (WS1) Sorghum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                            plants
                                                                                                                                                                                                                                                                                                                                                                                                                                EST 19-JUL-2000
bicolor cDNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ω,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ۲
                                                                            ACCESSION
VERSION
                                                                                                                                                                       RESULT 11
BG047825
LOCUS
                                                                                                                                                                                                                                                                                                                                                                              DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                         γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ΔÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
          SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VΩ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                       KEYWORDS
                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                     482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          122
                                                                                                                                                                                                                                                                                                                                       656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          296
```

δõ

· Bb Qy Вр

Ş В δ B δÃ

뮵

δÃ 밁

밁 δõ

rocus

COMMENT

Sorghum

bicolor

ρy В Š 밁

```
Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        176 GCAGCAGCTCGCCGTCGTCAGCCGTTTTTCCACGGCGAGTGCTTCGTGGTGGGCGACAATA 235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   62 GCAGCAGCTCCCCGTCGTCTGCCGTTTTCCACGGCGAGTGCTTTGTGGTGGGCGACAACA 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGTTCGTCGCTCCGGGTGAGGAGTCCTCCCGCTACGCCATCATTGTCGGCGGAGCCAACT
                                                                                                                                                                                                                                                                                         TCGGGTGCGGTTCCCTCTCGCGAGCACGCGCCCGTCGCGCTTGGGGCCGCTGGCGCACGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGTACCGCAAGCTCCGTTTGCCTTTCGCGGGGCTCCCCTCCGCGGCCTACCCGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCGACACCGACCAGATCATCCCCGCCGAGCACCTCACTCTGGTGCCCTCCAAGCCGGACG
                                                                                                                                                                                                                                      TGAAACCAATTGGTGATGCTGGCCC
                                                                                                                                                                                                                                                                                                                                                                                          TGTACCCTCTGGAGCTCACGGACGTTGGGGCCTGGAAGGAGTGCAAGACAGGGGATGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCGTCGTCGCGGAGGGCTACGCGCGCATCTTCTTCCGCAACTCCGTGGCCACTGGAGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCATTGTTGCSGAGGGCTACGCGCGCATCTTTTTTCGCAACTCCGTGGCCACTGGAGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCGGGTGCGCTCCTCCCGCGAGCACGCGCCCGTCGCGCTTGGGGCGGCTGGAGCCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGTTCGTCGCCCCGGGTGAGGAGTCCACCCGCTACGCCGTCGTCGTCGTGGGGCCCAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGTACCGCAAGCTCGGTTCCTTCGCCTTCGCGGGGCTCCCATCCGCGGCCTACCCGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCGACACCGACCAGATCATCCCCGCGGGGGCACCTCACTCTGGTGCCCTCCAAGCCTGACG
                                                                                                                                                                                                                   TGAAACCAATTGGTGATGCTGGTCC
                                                                                                                                                                                                                                                                                                                                                                         TGTACCCTCTGGAGCTCACGGACACTGGAAGCCTGGAAGGAGTGCAAGACAGGGGATGTGG
                                      BG047825

OVI_28_C06.b1_A002 (

sequence.

BG047825.1 GI:12497

BG047825.1 GI:12497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Email: numpratt@uga.edu
Sequences have been trimmed
below Phred quality 16. The
sorghum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POLYA=No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Tel: 706 542 1860
Fax: 706 583 0210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           h 43.9%;
Similarity 93.5%;
72; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    primer: JEN REV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 quality sequence stop:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /Clone_lib="Water-stressed 1 (WS1)"
/note="Organ: Mix of 5.week old plants on days 7 & 8 after
water was withheld; Vector: Lambda Zap; Site_1: XhoI;
Site_2: EcoRI; The library was made from poly-A RNA in the
cloning vector lambda ZAP II. Clones to be sequenced were
prepared by mass excision."
a 196 c 165 g 112 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Sorghum bicolor"
/db_xref="taxon:4558"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                               Ovary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 453.4; DB 10;
Pred. No. 2.5e-63;
1; Mismatches 32;
                                                                                      551
/ 1 (
                                                                                                                                                                                                                 566
                                                                                                                                                                                                                                                       680
                                                                                               (140)
dq 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          to exclude PolyA, vector and regions threshold for highest quality sequence
                                                                                               Sorghum
                                                                                                                  mRNA
                                                                                                 bicolor
                                                                                                                  linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                 cDNA,
                                                                                                                  EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                    25-JAN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                             541
                                                                                                                                                                                                                                                                                                                                   655
                                                                                                                                                                                                                                                                                                                                                                                                             595
                                                                                                                                                                                                                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              355
                                                                                                                                                                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
```

Sudman, M.

```
JOURNAL COMMENT
                                                                  B
                                                                                              δõ
                                                                                                                                   В
                                                                                                                                                                  γQ
                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                          Вb
                                                                                                                                                                                                                                                                                                           QY
                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                            Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                       Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches 474;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
 489
                                                                  429
                                                                                                     674
                                                                                                                                       369
                                                                                                                                                                        614
                                                                                                                                                                                                           309
                                                                                                                                                                                                                                             554
                                                                                                                                                                                                                                                                              249
                                                                                                                                                                                                                                                                                                                   494
                                                                                                                                                                                                                                                                                                                                                    189
                                                                                                                                                                                                                                                                                                                                                                                      434
                                                                                                                                                                                                                                                                                                                                                                                                                         129
                                                                                                                                                                                                                                                                                                                                                                                                                                                          374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCCCCGCCGAGCACCTCACTCTGGTGCCCTCCAAGCCGGACGACGAGTACCGCAAGCTCGGTT
CTGGCCCTGTAATTGAGGCGGGAGGGATCTTTGCCTACGCCCGGAAGACAGGAATGATTG
                                                                                                                                                                                                       CGGACGTTGGGGCCTGGAAGGAGTGCAAGACAGGGGATGTGGTCACCGTGGACCTTGCTA
                                                                                                                                                                                                                                                                                                                                                                     GCGAGCACGCGCCGTCGCGCTTGGGGCCGCTGGCGCCACGCGCCATTGTTGCSGAGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACGCGCGCATCTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTACCCTCTGGAGCTCA
                                                                                                                                                                                                                                                                                                                                                  GCGAGCACGCGCCCGTCGCGCTTGGGGCCGGCTGGAGCCCGCCGTCGTCGCGGAGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCCCCGCGGAGCACCTCACTCTGGTGCCCTCCAAGCCTGACGAGTACCGCAAGCTCGGCT
                                                                                                                                       ACTCCGTTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATG
                                                                                                                                                         ACTCCGTTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATG
                                                                                                                                                                                                                                                                              ACGCGCGCATCTTCCTTCCGCAACTCCGTGGCCACTGGAGAGGTGTACCCTCTGGAGCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                         AGGAGTCCACCCGCTACGCCGTCGTCGGTGGGGCCAACTTCGGGTGCGGCTCCTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                        AGGAGTCCTCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGTGCGGTTCCTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             High qual POLYA-No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   An EST database from Sorghum: ovaries of varying Unpublished (2000)
Contact: Cordonnier-Pratt MM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnollophyta; Liliopsida; Poales; Poaceae; PACC clade; Panicoideae; Andropogoneae; Sorghum.

1 (bases 1 to 551)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Email: mmpratt@uga.edu
Sequences have been trimmed
below Phred quality 16. The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Laboratory for Genomics and Bioinformatics
The University of Georgia, Department of Plant Biology
Plant Sciences Building, Rm. 2502, Athens, GA 30602-7271,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Tel: 706 542 1860
Fax: 706 583 0210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cordonnier~Pratt,M.~M., Gingle,A., Marsala,C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          primer: JEN REV
h quality sequence stop:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /clone_lib="Ovary I (OV1)"
/note="Organ: Mix of ovaries of varying immature stages from 8-week-old plants; Vector: pBluescript II from Lambda Zap II; Site_1: XhoI; Site_2: EcoRI; The library was made from poly-A RNA in the cloning vector lambda ZAP II. clones to be sequenced were prepared by mass excision."
a 170 c 175 g 110 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Sorghum bicolor"
/db_xref="taxon:4558"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 43.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 453; DB 12;
Pred. No. 2.9e-63;
I; Mismatches 36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              to exclude PolyA, vector and regions threshold for highest quality sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 551;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sudman, M. and Pratt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       immature stages
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                           613
                                                                                                                                                                                                                                                                                                                 553
                                                                                                                                                                                                                                                                                                                                                                                    493
                                                                                                                                                                                                                                                                                                                                                                                                                         188
                                                                                                                                                                                                                                                                                                                                                                                                                                                        433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             373
                                                                    488
                                                                                                                                     428
                                                                                                                                                                        673
                                                                                                                                                                                                           368
                                                                                                                                                                                                                                                                              308
                                                                                                                                                                                                                                                                                                                                                  248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lambda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 12
BE360264
LOCUS
DEFINITION
                                                                                                             Qy
                                                                                                                                                                                     Qy
                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                            Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
VERSION
                                              δÃ
                                                                                   В
                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                324
                                                 298
                                                                                     264
                                                                                                                      238
                                                                                                                                                       204
                                                                                                                                                                                                                            144
                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity nes 479; Conserv
                                                                                                                                                                                                                                                                                                84
                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                     24
                                                                                   CTAAAATGCCGCCGCGCTGGGTCCATCGTCCCCGCGGCCGCCGCTGCTGCCGCGGGGGG----GC
                                                                                                                                                                                                                                                                                                                 CGAGCTCCAACCAGCGCTTTATCCGGCGCTCCCAGCTCACCTGTCATCGCCTCCACTCA 120
                                                                                                                                                                                                                                                                                                                                                                     AACATGGCGGCTGCTCCGCCGACGGCGCGTGTCCACGGCGCGCGTTCTAGCCCCAATC
                                                                                                                                                                                                                                                                                                                                                                                    ATCATGGCGGCGCTCTGTCGGGGACGGCGGTGTCCACGGCAGCGCTTCTAGCCCCAATC 60
                TACCGCAAGCTCGGCTTCCTTTGCCTTCGCGGGGCTTCCCCTCCGCGGCCTACCCGACGCCG
                                                 TACCGCAAGCTCGGTTCCTTCGCCTTCGCGGGGCTCCCATCCGCGGCCTACCCGACGCCG
                                                                                                                                                       AGCAGCTCGCCGTCGTCAGCCGTTTTCCACGGCGAGTGCTTCGTGGTGGGCGACAATATC
                                                                                                                                                                                                                            CTAAAATGCCGCCGCGCTGGTCCCATCGTCCCCGCGGCCGCTGCTGCCGCGGCGGCGGCAGC
                                                                                                                                                                                                                                                                                                CGAGCTCCAACCAGCGCGTTTCTCCGGCGCACCCAGCTCACCCGTCACCGCGACCACTCC 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        An EST database from Sorghum:
Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Plant Sciences Building,
Tel: 706 542 1860
Fax: 706 583 0210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Laboratory for Genomics and Bioinformatics
The University of Georgia, Department of Plant Biology
Plant Sciences Building, Rm. 2502, Athens, GA 30602-7271,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACC clade; Panicoideae; Andropogoneae; Sorghum.

1 (bases 1 to 546)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sorghum bicolor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BE360264
DG1_62_B02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Cordonnier-Pratt, M.-M., Gingle, A., Marsala, C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BE360264.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   High quality sequence stop:
POLYA=No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Email: mmpratt@uga.edu
Sequences have been tr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Contact: Cordonnier-Pratt MM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      below Phred quality
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     primer: JEN REV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               70
                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /Clone_lib="Dark Grown 1 (DG1)"
note="Organ: 5-day-old dark-grown seedlings; Vector:
/note="Organ: 5-day-old dark-grown seedlings; Vector:
/note="Organ: 5-day-old dark-grown seedlings; Vector:
/note="Organ: 5-day-old dark-grown seedlings; Vector: Inhorary was made from poly-a RNA in the cloning vector lambda ZAP II.
Clones to be sequenced were prepared by mass excision."
200 c 162 g 94 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Sorghum bicolor"
/db_xref="taxon:4558"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .b1_A002 Dark Grown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GI:9301821
                                                                                                                                                                                                                                                                                                                                                                                                                                                     42.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    trimmed 16. The
                                                                                                                                                                                                                                                                                                                                                                                                                                    ; Score 442.6;
; Pred. No. 1.4e
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  to exclude PolyA, vector and regions threshold for highest quality sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         n 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             dark-grown seedlings
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mRNA linear EST 20-JUL-2000 (DG1) Sorghum bicolor cDNA, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                        1.4e-61;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                        40;
```

Indels Length

**ω** 

Gaps

1:

83

177

263 237 203

357 323 297

```
RESULT 13
BG309960
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTCGTCGCTCCGGGTGAGGAGTCCTCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTGTTGCSGAGGGCTACGCGCGCATCTTTTTTCGCAACTCCG 520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGTGCGGTTCCTCTCGCGAACACGCGCCCGTCGGCGCTTGGGGGCCGCTGGCGCACGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTCGTCGCGGAGGGCTACGCGCGCATCTTCTTCCGCAACTCCG 546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Wing RA
Clemson University Genomics Institute
Clemson University
Clemson University
Clemson University
Clemson University
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Wing,R., Close,T.J., Kleinhofs,A., Wise,R., Begum,D., Frisch,D., Y., Henry,D., Palmer,M., Rambo,T., Simmons,J., Choi,D.W., Fenton,R.D., Oates,R. and Main,D.
Development of a genetically and physically anchored EST resource for barley genomics: Morex unstressed seedling shoot cDNA library Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100 Jordan Hall, (Tel: 864 656 7288 Fax: 864 656 4293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hordeum vulgare
Eukaryota; Viridiplantae; Streptophyta; Embryophyt
Spermatophyta; Magnoliophyta; Liliopsida; Poales;
; Triticeae; Hordeum.
1 (bases 1 to 841)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BG309960.1 GI:13110807
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BG309960 841 bp mRNA linear EST 22-OCT-2001 HVSMEc0015H22f Hordeum vulgare seedling shoot EST library HVcDNA0003 (Etiolated and unstressed) Hordeum vulgare cDNA clone HVSMEc0015H22f, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Total hq bases - 553
Seq primer: AATTAACCO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hordeum vulgare.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          primer: AATTAACCCTCACTAAAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 quality sequence stop: 712
/note="Vector: lambdaZAP; Site_1: EcoR1; Site_2: Xho1; Seeds were surface sterilized then germinated under axenic conditions in the dark at room temperature on filter paper with water, nystatin and cefotaxime in covered crystallization dishes. Five-day old seedling shoots were then harvested, total RNA was prepared, poly(A) RNA was purified, one primary unamplified cDNA library was made, and I million pfu were in vivo excised to give pBluescript SK(-) cDNA phagemids. These steps were performed in the TJ Close laboratory at the University of California, Riverside (Choi, Close, Fenton). Phagemids were plated and picked at the Clemson University Genomics Institute (CUGI) (Begum, Palmer, Frisch, Atkins and Wing). Plasmid DNA preparations, DNA sequencing and sequence analysis were performed at CUGI (Wing, Yu, Frisch, Henry, Simmons, Oates, Rambo, Main). The sequence has been trimmed to remove vector sequence and contains a minimum of 100 bases of phred value 20 or above. For more details on library preparation and sequence analysis see
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rwing@clemson.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /clone_lib="Hordeum vulgare seedling shoot EST library HVcDNA0003 (Etiolated and unstressed)" /tissue_type="Seedling shoot"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Hordeum vulgare"
/cultivar="Morex"
/db_xref="taxon:4513"
/clone="HYSMEC0015H22f"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /lab_host="TJC121"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            . 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Clemson,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Embryophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Poaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tracheophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pooideae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    503
```

RESULT 14 AW747153

DEFINITION

AW747153 S14 bp mRNA linear EST 19-JUL-WS1\_66\_G07.bl\_A002 Water-stressed 1 (WS1) Sorghum bicolor cDNA, mRNA sequence.

AW747153

EST 19-JUL-2000

VERSION ACCESSION

AW747153.1

GI:7660891

```
В
                                                                                                                  Ş
                                                                                                                                                                 Qγ
                                                                                                                                                                                           Вb
                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                              ρy
                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                            20
                                                                                                                                                                                                                                                                                                                                      Дb
                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                    DЪ
                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                   Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
₽
                     Ş
                                              뫄
                                                                   δĀ
                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                       438
                                                                                                                                                                                                                                                                                                                                                                                      318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  153
                        742
                                                                                               678
                                                                                                                     622
                                                                                                                                             618
                                                                                                                                                                   562
                                                                                                                                                                                            558
                                                                                                                                                                                                                  502
                                                                                                                                                                                                                                          498
                                                                                                                                                                                                                                                                442
                                                                                                                                                                                                                                                                                                                382
                                                                                                                                                                                                                                                                                                                                        378
                                                                                                                                                                                                                                                                                                                                                              322
                                                                                                                                                                                                                                                                                                                                                                                                                                    258
                                                                                                                                                                                                                                                                                                                                                                                                                                                           202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          142
798
                                               738
                                                                      682
                                                                                                                                                                                                                                                                                                                                                                                                             262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                 GAGCACCTCACTCTGGTGCCCTCCAAGCCGGACGACTACCGCAAGCTCGGTTCCTTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCCATCGTCCCCGCGGCCGCTGCTGCCGCCGGCGGCAGCAGCTCGCCGTCGTCAGCCGTT 201
                                                                                                                                                                                                                                                                                                                                                   TTCGCGGGGCTCCCATCCGCGGCCTACCCGACGCCGTTCGTCGCTCCGGGTGAGGAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGGCGACGGCGACGGCTGTGCTAGCCCCCGGCCGAGCGCCCACCAGAGCCCGC 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGGACGGCGGTGTCCACGGCAGCGCTTCTAGCCCCAATCCGAGCTCCAACCAGCGCGTTT 81
                                                                                                                                                                                                                                                      TCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGTGCGGTTCCTCTCGCGAGCAC
                                                                                                                                                                                                                                                                                                                                                                                       GAGCACCTGACCCTGGTGCCGTCCAAGCCCGACGAGGTACCGCAAGCTCGGCTCCTTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                     TTCCACGGCGAGTGCTTCGTCGTCGGGGACAACATCGACACCGACCAGATCATCCCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCCCTAACCGCGGCCGCCACGGGCGA - - - - - - - - CTCGCCGTCGTCCGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATTCAGGCCGCCCCCCCCCCCCCCCTACCGT---CTCGCTGAGATGCCACCGCTCTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATCTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTACCCTCTGGAGCTCACGGACGTT
                                                                                                                                                                                                                                         TCACGCTACGCCGTCATCATCGGCCGCCGCCCACTTCGGATGCGGCTCCTCCCGCGAGCAC
                                                                                                                                                                                                                                                                                                                                      TTCGTGGGCCTCCCCTCCGCGGCCTACCCGATTCCCTTTGTGGCCCCCGGCGAGGAGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTCCACGGCGAGTGCTTCGTGGTGGGCGACAATATCGACACCGACCAGATCATCCCCGCC 261
TCTGC
                        GCTGC 746
                                                 GNTATTGAGGCCGGGGGGATCTTCGCTTATGCTCGGAAGAACTGGATGATCGCGTCCCAA
                                                           GTAATTGAGGCGGGAGGGATCTTTGCCTACGCCCGGAAGACAGGAATGATTGCGTCGAAA 741
                                                                                              TTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATGCTGGCCCT 681
                                                                                                                                             GGTGCCAGCAAGGAGTGCATAGACCGAGATGTGGTCACAGTCGACCTCGATAACTCGGTC
                                                                                                                                                                   GGGGCCTGGAAGGAGTGCAAGACAGGGGATGTGGTCACCGTGGACCTTGCTAACTCCGTT 621
                                                                                                                                                                                            ATCTTCTTCCGCAATTCCGTGGCCACCGGGGAGGTGTACCCCCTGGAGCTCGCGGACAGC
802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        42.18; 77.08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 435.4; D
Pred. No. 1.5e-
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                             321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   209
                                                 797
                                                                                                                                                                                                                  561
                                                                                                                                                                                                                                                                501
                                                                                                                                                                                                                                                                                         497
                                                                                                                                                                                                                                                                                                                441
                                                                                                                                                                                                                                                                                                                                       437
                                                                                                                                                                                                                                                                                                                                                              381
                                                                                                                                                                                                                                                                                                                                                                                       377
                                                                                                                                                                                                                                                                                                                                                                                                                                     317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    257
                                                                                                                                             677
                                                                                                                                                                                            617
                                                                                                                                                                                                                                          557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Also
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2
```

```
JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
SOURCE
                                                                                                                                                Qy
                                                                                                                                                                                                               뫄
                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                  뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       282 CTCCAAGCCGGACGAGTACCGCAAGCTCGGTTCCTTCGCCGCGGGGCTCCCATCCGC
                                                                                                                                                                                                                                                                                                                                249
                                                                                                                                                                                                                                                                                                                                                                                 522
                                                                                                                                                                                                                                                                                                                                                                                                                                        189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               342
                                                                                                       369
                                                                                                                                                                                                                  309
                                                                                                                                                                                                                                                                      582
429
                                                   702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGCCTACCCGACGCCGTTCGTCGCCTCCGGGTGAGGAGTCCTCCCGCTACGCCCATCATTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTCCAAGCCTGACGAGTACCGCAAGCTCGGCTCCTTTGCCTTCGCGGGGCTCCCCTCCGC
                                                                                                                                                                                                                                               GACAGGGGATGTGGTCACCGTGGACCTTGCTAACTCCGTTTTTATTAACCACACACCTCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCTGGCGCACGCGCCATTGTTGCSGAGGGCTACGCGCGCATCTTTTTTCGCAACTCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGGCGGAGCCAACTICGGGTGCGCGTTCCTCTCGCGAGCACGCGCCCCGTCGCGCTTGGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCCTACCCGACGCCGTTCGTCGCCCCGGGTGAGGAGTCCACCCGCTACGCCGTCGTCGT
                         CTTTGCCTACGCCCGGAAGACAGGAATGATTGCGTCGAAAGCTGCTGCATGAGGGAAAGC
                                                                                                                                    GGCCACTGGAGAGGTGTACCCTCTGGAGCTCACGGACGTTGGGGGCCTGGAAGGAGTGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                     GGCTGGAGCCCGCGCGTCGTCGCGGAGGGCTACGCGCGCATCTTCTTCCGCAACTCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGGTGGGGCCAACTTCGGGTGCGGCTCCTCCCGCGAGCACGCGCCCCGTCGCGCTTGGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 471;
CTTTGCCTATGCTCGGAAGACAGGAATGATCGCGTCAAAAGCTGCTGCATGAGGGAAAGG
                                                                                                          EST.
sorghum.
sorghum bicolor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukáryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACC clade; Panicoideae; Andropogoneae; Sorghum.

1 (bases 1 to 534)
Cordonnier-Pratt, M.-M., Gingle, A., Marsala, C., Sudman, M. and Pratt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Laboratory for Genomics and Bioinformatics
The University of Georgia, Department of Plant Biology
Plant Sciences Building, Rm. 2502, Athens, GA 30602-7271,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Throublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unpublished (2000)
Contact: Cordonnier-Pratt MM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Email: mmpratt@uga.edu
Sequences have been trimmed to exclude PolyA, vector and regions
below Phred quality 16. The threshold for highest quality sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POLYA-No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Seq primer: JEN REV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               706 542 1860
706 583 0210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   quality sequence stop:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /Clone_lib="Water-stressed 1 (WS1)"
/note="Organ: Mix of 5-week old plants on days 7 & 8 a
/note="Organ: Mix of 5-week old plants on days 7 & 8 a
/note="Organ: Mix of 5-week old plants on days 7 & 8 a
/note="Organ: Mix of 5-week old plants on days 7 & 8 a
/note="Organ: Site_1: XhoI;
/note="Organ: Site_1: XhoI;
/note="Organ: Site_1: XhoI;
/note="Organ: Site_1: XhoI;
/note="Organ: Note: Site_1: XhoI;
/note="Organ: Note: Site_1: XhoI;
/note="Organ: 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Sorghum bicolor"
/db_xref="taxon:4558"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           41.5%;
89.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 428.8; DB 10;
Pred. No. 2.2e-59;
l; Mismatches 53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 water-stressed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    plants
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                      761
                                                                                                                                                                 701
                                                                                                                                                                                                                                                                                                                                   308
                                                                                                                                                                                                                                                                                                                                                                                       581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   341
                                                                                                                                                                                                                        368
                                                                                                                                                                                                                                                                               641
                                                                                                                                                                                                                                                                                                                                                                                                                                              248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      188
     488
                                                                                                             428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          after
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1;
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 15
BG267153/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCUS
                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                γ
                                                                              뫄
                                                                                                       δÃ
                                                                                                                                    멍
                                                                                                                                                           Qy
                                                                                                                                                                                          멍
                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                       Qy
                          B
                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                       Matches 444;
                                                                                                                                                                                                                                                                                                                      Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            489
                                                                                                                                                                                           440
                                                                                                                                                                                                                      607
                                                                                                                                                                                                                                              762
                                                                                                           727
                                                                                                                                       380
                                                                                                                                                                 667
320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTA-TGCAGCCGAGCCTCTGCGGAGATGAAGAAGTAAGCTGGAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TAAGTTTCATCTTCTGTCATCTGCGCGAATGAAGTAAGCTGGAGTT
                                                                                                                                                                                                         CTTGCTAACTCCGTTTTTATTAACCACCACCTCTGGCAAGGAGTACAAGCTGAAACCAATT 666
                                        GGAGATGAAGAAGTAAGCTGGAGTTAGGACTAAGAGTTACTGCACCTACTTGATGTCGAC
                                                                                             ATGATTGCGTCGAAAGCTGCTGCATGAGGGAA-----AGCTTATGCAGCCGAGCCTCTGC
                                                                                                                                                                                             CTTGCTAACTCCGTTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCAATT
                                                                                ATGATTGCGTCGAAAGCTGCTGCATGAGGGAAAGATCAGCTTAGGCAGCCGAGCCTCTGC
                                                                                                                                                    GGTGATGCTGGCCCTGTAATTGAGGCCGGAGGGATCTTTGCCTACGCCCGGAAGACAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaclade; Panicoideae; Andropogoneae; Zea. (bases 1 to 500)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BG267153.1
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cDNA, mRNA
BG267153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BG267153
1000112B05.x1 1000 -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Walbot, V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tel: 650 723 2227 Fax: 650 725 8221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         855 California Ave,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Department of Biological
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Contact: Walbot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            University
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Maize ESTs from various
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Zea mays.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Stanford University
                                                                                                                                                                                                                                                                                                                                                                    /clone_lib="1000" - Unigene I from Maize Genome Project"
/clone_This library represents the unique ESTs found in
the first round of EST sequencing at Stanford University
for the maize genome project. Sequences are present from
libraries 486, 487, 496, 603, 605, 606, 614, 618, 660, 683
, 687, 707, and 945. Contigs were assembled using TIGR's
CAP program and a representative EST from each contig was
selected for the Unigene set. All singlets were also
selected."

43 a 131 c 106 g 120 t
                                                                                                                                                                                                                                                                                                                                                                          143
                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  walbot@stanford.edu
1000112 row: B co
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   00112 row: B colu
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Zea mays"
/db_xref="dbEST:605053H06.x1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1. .500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GI:12970777
                                                                                                                                                                                                                                                                                                                    39.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Palo Alto, CA 94304, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Unigene
                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                      Score 412.6; DB 1
Pred. No. 8.9e-57;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   column:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cDNA libraries sequenced
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sciences
                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            dq⊓
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Maize Genome Project Zea mays
                                                                                                                                                                                                                                                                                                                                   DB 12;
                                                                                                                                                                                                                                                                                                          4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            linear
                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Poaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EST 20-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Tracheophyta;
                                                                                                                                                                                                                                                                                                          9;
                                                                                                                                                                                                                                                                                                          Gaps
                                                                                     261
                                                                                                                781
                                                                                                                                           321
                                                                                                                                                                      726
                                                                                                                                                                                                381
                                201
                                                           841
```

2;

δõ

<b>;</b>			

\*

```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Minimum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                    ဂ ဂ
                                                                                                                                                                              O
                                                                                                                                                                                                                         0 0
                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         nucleic -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    on ::
         and is derived
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB seq
                                                                                                                                                                                        1032.6
961.2
961.2
261.2
291.2
57.2
57.2
57
57
57
57
57
57
57
57
57
57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score
                                                                             53.4
53.4
52
52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Issued_Patents_NA:*
1: /cgn2_6/ptodata/1,
2: /cgn2_6/ptodata/1,
3: /cgn2_6/ptodata/1,
4: /cgn2_6/ptodata/1,
5: /cgn2_6/ptodata/1,
6: /cgn2_6/ptodata/1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-027-450-46
1033
1 atcatggcggcggct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               is the number of results predicted by chance to have a ater than or equal to the score of the result being printed, rived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        April 3, 2003, 02:59:38; Search time 75 Seconds (without alignments) 4223.961 Million cell updates/sec
       IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          441362 seqs, 153338381 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /cgn2_6/ptodata/1/ina/5A_COMB.seq:*
/cgn2_6/ptodata/1/ina/5B_COMB.seq:*
/cgn2_6/ptodata/1/ina/6A_COMB.seq:*
/cgn2_6/ptodata/1/ina/6B_COMB.seq:*
/cgn2_6/ptodata/1/ina/PCTUS_COMB.seq:*
/cgn2_6/ptodata/1/ina/Packfiles1.seq:*
     Length DB
WS-09-173-300-46
WS-09-173-300-52
WS-09-173-300-50
WS-09-173-300-50
WS-08-173-300-50
WS-08-173-300-50
WS-08-173-194-102-10
WS-08-173-120-12
WS-08-173-120-12
WS-08-173-120-12
WS-08-173-120-12
WS-08-173-120-12
WS-08-174-102-12
WS-08-174-102-12
WS-08-174-102-12
WS-08-174-102-13
WS-08-174-102-14
WS-08-174-102-14
WS-08-174-102-14
WS-08-174-102-14
WS-08-174-102-13
WS-09-174-173-15
WS-09-174-173-15
WS-09-247-773-25
WS-09-247-773-25
WS-09-387-574-11
WS-09-387-574-11
US-09-387-574-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        882724
Sequence 46, Appl Sequence 52, Appl Sequence 20, Appl Sequence 10, Appl Sequence 11, Appl Sequence 11, Appl Sequence 12, Appl Sequence 12, Appl Sequence 12, Appl Sequence 12, Appl Sequence 14, Appl Sequence 46, Appl Sequence 46, Appl Sequence 47, Appl Sequence 48, Appl Sequence 48, Appl Sequence 17, Appl Sequence 17, Appl Sequence 17, Appl Sequence 25, Appl Sequence 11, Appl Sequence 11,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Description
```

Qy Qy Qy	ор Оу Оу Ор	RESUUS - O SEE COTTPANA PARA	. 0 0
181 181 241 241 301	1 61 61 121 121	SULT 1 Sequence of Patent No GENERAL II APPLICAN IIILE OF TITLE OF TITLE OF TITLE OF TITLE REFICURENT I CURRENT CURRENT CURRENT I NUMBER OI DI NO LENGTH: SAFTWARE SOFTWARE SOFTWARE SOFTWARE SOFTWARE ID ORGANIS 10 OUET Matches 11 OUET MATCHES	00000000000000000000000000000000000000
AGCTCGC         AGCTCGC ACCGACC          ACCGACC	ATCATG        ATCATG CGAGCT        CGAGCT        CTAAAA	00-46 6451 16451 1: Fal 1: Fil 1: Kir 1: Kir 1: Kir 1: Rai 1: Rai	44444444444444444444444444444444444444
CGTO       CGTO  AGAT        TCGG	GGC AAC AAC 111 AAC CCG	-46 .46 .451581 .RMATION: FRAICO, SANFATION: FRAICO, SANFATION: Cahoon, Re Rafalski, AVENTION: LINCATION: LING DATE: LING	5 5 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
GTCAGCCGTTTTCCA	GGCTCTGTCGGGGACGG	ation US/ averio C Illiam D. Anthony Rebecca I J Ant PLANT B -1126 N NUMBER: 3: 1998-1 N NUMBER: 3: 1997 O DS: 54 L Word Ve EWOrd Ve 100.	3080 3080 3437 44377 1474 1313 1813 1813 1813 1813 1813 1813 181
SCCTTCC	CGGC CGGC CGGC CTTAI CTTAI CGTC CGTC	S/09173  Cail D. Y J. Y J	444342244433445324
Tecacogcgagtgettegtgegcc	SOGGTGTCCACGCA	on US/09173300  erio Carl thony J. becca E. J. Antoni UMBER: US/09/173,300 1998-10-15 1998-10-15 1997 October 28 54 lord Version 7.0A  lord Version 7.0A  loo.0%; Score 1032.6; DB 4; 100.0%; Pred. No. 4.7e-226; ative 0; Mismatches 0;	US-09-099-041A-25 US-09-245-281-25 US-09-207-359B-25 US-08-860-339-17 US-08-804-227C-7 US-08-804-227C-7 US-08-804-227C-7 US-08-804-227C-7 US-08-804-227C-7 US-08-804-227C-7 US-08-747-121B-24 US-09-015-051-24 US-09-005-051-24 US-09-055-051-24 US-09-055-051-24 US-09-055-051-24 US-09-05-051-24 US-09-05-051-24 US-09-05-051-24 US-09-05-051-24 US-09-05-051-24 US-09-05-051-26 5284931-1 US-09-150-741-1
GGCGACAATATCGAC 240	GGCAGCGCTTCTAGCCCCAATC 60 GGCAGCGCTTCTAGCCCCAATC 60 GGCAGCGCTTCTAGCCCCAATC 120 CACCTGTCATCGCCTCACTCA 120 CACCTGTCATCGCCTCCACTCA 120 CACCTGTCATCGCGCGCGCCTCA 120 CGCTGCTGCCGCGGCGGCAGC 180 CGCTGCTGCCGCGGGGGCAGC 180	BIOSYNTHETIC ENZYMES  Length 1033; Indels 0; Gaps 0;	Sequence 25, Appl Sequence 25, Appl Sequence 27, Appli Sequence 5, Appli Sequence 7, Appli Sequence 7, Appli Sequence 112, Appli Sequence 112, Appli Sequence 24, Appli Sequence 26, Appli Sequence 26, Appli Sequence 26, Appli Sequence 26, Appli Sequence 27, Appli Sequence 26, Appli Sequence 27, Appli Sequence 28, Appli Sequence 27, Appli Sequence 28, Appli Sequence 3, Appli Sequence 1, Appli Sequence 1, Appli

```
RESULT 2
US-09-173-300-52
US-09-173-300-52
Sequence 52, Application US/09173300
Patent No. 6451581
GENERAL INFORMATION:
APPLICANT: Falco, Saverio Carl
APPLICANT: Kinney, Anthony J.
APPLICANT: Kinney, Anthony J.
APPLICANT: Rafalski, J. Antoni
TITLE OF INVENTION: PLANT BRANCHED CHAIN AMI
FILE REFERENCE: BB-1126
CURRENT APPLICATION NUMBER: US/09/173,300
CURRENT APPLICATION NUMBER: 60/053,423
EARLIER APPLICATION NUMBER: 60/053,423
EARLIER FILING DATE: 1997 October 28
NUMBER OF SEQ ID NOS: 54
SOFTWARE: Microsoft Word Version 7.0A
SEQ ID NO 52
LENGTH: 995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                         γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                              뮍
                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                           ₽.
                                                                                                                                                                                                                                                         QY
                                                                                                                                                                                                                                                                          Вр
                                                                                                                                                                                                                                                                                      γ
                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                               QΥ
                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                              Вb
                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                               δõ
TYPE: DNA
ORGANISM: Triticum
                                                                                                                                                                                                                                                                                                                                                                    661
                                                                                                                                                                                                                                                                                                                                                                                   661
                                                                                                                                                                                                                                                                                                                                                                                                  601
                                                                                                                                                                                                                                                                                                                                                                                                                               541
                                                                                                                                                                                                                                                                                                                                                                                                                                             541
                                                                                                                                                                                                                                                                                                                                                                                                                                                             481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                   1021
                                                                                                                                                                                                1021
                                                                                                                                                                                                                                                                                                                                                                                                                 601
                                                                                                                                                                                                                                                           901
                                                                                                                                                                                                                                                                           841
                                                                                                                                                                                                                                                                                          841
                                                                                                                                                                                                                                                                                                                                      721
                                                                                                                                                                                                                                                                                                                                                   721
                                                                                                                                                                                                                                             901
                                                                                                                                                                                                                                                                                                        781
                                                                                                                                                                                                                                                                                                                       781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGCGGTTCCTCTCGCGAGCACGCGCCCGTCGCGCGTTGGGGCCCGCTGGCGCACGCGCCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTCGCTCCGGGTGAGGAGTCCTCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGGTCGCTCCGGGTGAGGCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGGTGAGGCAACTTCGGG
                                                                                                                                                                                                                                                                                                                                                                  GTGGACCTTGCTAACTCCGTTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                      CCTCTGGAGCTCACGGACGTTGGGGCCTGGAAGGAGTGCAAGACACGGGGATGTGGTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTTGCSGAGGGCTACGCGCGCATCTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCAAGCTCGGTTCCTTCGCCGGGGGCTCCCATCCGCGGCCTACCCGACGCCGTTC
                                                                                                                                                                                                                                                                          ACAGGAATGATTGCGTCGAAAGCTGCTGCATGAGGGAAAGCTTATGCAGCCGAGCCTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                               CCTCTGGAGCTCACGGACGTTGGGGCCTGGAAGGAGTGCAAGACAGGGGATGTGGTCACC
                                                                                                                                                                                                              GTGGACCTTGCTAACTCCGTTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAA
                                                                                                                                                                                                                                                    AAAAAAAAAAAA 1033
                                                                                                                                                                                                                                            1033
                                                                                   AMINO ACID
                                                                                   BIOSYNTHETIC
                                                                                    ENZYMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        420
                                                                                                                                                                                                                                1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                 1020
                                                                                                                                                                                                                                                                                                                          840
                                                                                                                                                                                                                                                                                                                                                                                                    660
                                                                                                                                                                                                                                                                                                                                                                                                                  660
                                                                                                                                                                                                                                                                                                                                                                                                                                 600
                                                                                                                                                                                                                                                                                                                                                                                                                                               600
                                                                                                                                                                                                                                                                                                                                                                                                                                                              540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             540
                                                                                                                                                                                                                                               960
                                                                                                                                                                                                                                                             960
                                                                                                                                                                                                                                                                             900
                                                                                                                                                                                                                                                                                            900
                                                                                                                                                                                                                                                                                                          840
                                                                                                                                                                                                                                                                                                                                        780
                                                                                                                                                                                                                                                                                                                                                       780
                                                                                                                                                                                                                                                                                                                                                                     720
                                                                                                                                                                                                                                                                                                                                                                                    720
                                                                                                                                                                                                                                                                                                                                                                                                               γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                 Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                               Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-173-300-52
                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                      γQ
                                                                                                                                                                                                                                                                                                                                        Вþ
                                                                                                                                                                                                                                                                                                                                                     Ωy
                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                   δõ
                                                                                                                                                                                                QΥ
                                                                                                                                                                                                                B
                                                                                                                                                                                                                             δõ
                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                             Ъ
                                                                                                                                                                                                                                                                                                          В
                                                                                                                       В
                                                                                                                                      δõ
                                                                                                                                                                                    В
            δõ
                               밁
                                          δõ
                                                            맖
                                                                          δÃ
                                                                                          Б
                                                                                                      δÃ
                                                                                                                                                      밁
                                                                                                                                                                                                                                                488
                                                                                                                                                                                                                                                               506
                                                                                                                                                                                                                                                                              428
                                                                                                                                                                                                                                                                                            446
                                                                                                                                                                                                                                                                                                            368
                                                                                                                                                                                                                                                                                                                          386
                                                                                                                                                                                                                                                                                                                                         308
                                                                                                                                                                                                                                                                                                                                                        326
                                                                                                                                                                                                                                                                                                                                                                      248
                                                                                                                                                                                                                                                                                                                                                                                     266
                                                                                                                                                                                                                                                                                                                                                                                                    188
                                                                                                                                                                                                                                                                                                                                                                                                                   206
                                                                                                                                                                                                                                                                                                                                                                                                                                  128
                                                                                                                                                                                                                                                                                                                                                                                                                                                 146
                                                                                                                                                       899
                                                                                                                                                                     686
                                                                                                                                                                                    809
                                                                                                                                                                                                    626
                                                                                                                                                                                                                  548
                                                                                                                                                                                                                                 566
   968
                                               921
                                                             848
                                                                            861
                                                                                           788
                                                                                                          801
                                                                                                                         728
                                                                                                                                                                                                                                                                                                                                                                                                                                                               89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              86
```

```
Query Match
Best Local Similarity
Matches 978; Conserv
                                                                                                                                                                                                                                                                                                                                                                            ACGCCGAGTGCTTCGTGGTGGCGACAATATCGACACCGACCAGATCATCCCCGCCGAGC
                                                                                                                                                                                                                                                                                                                                                     TTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATGCTGGCCCTGTAA
                                                                                                                                                                                      CTGCATGAGGGAA-----AGCTTATGCAGCCGAGCCTCTGCGGAGATGAAGAAGTAAGCT
                                                                                                                                                                     CCTGGAAGGAGTGCAAGACAGGGGATGTGGTCACCGTTGGACCTTGCTAACTCCGTTTTTA
     CTGCTCTGTTGCCAAAAAAAAAAAAAAAA 1008
                      CCTGGAAGGAGTGCAAGACAGGGGATGTGGTCACCGTGGACCTTGCTAACTCCGTTTTTA
CTGCTCTGTTGCCATCTAAAAAAAAAAAA
                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                         93.0%;
                                                                                                                                                                                                                                                                                                                                                                                                         Score 961.2; DB
Pred. No. 8e-210;
                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
 995
                                                                                                                                                                                                                                                                                                                                                                                                               4;
                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                     ن.
                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                        127
                                                                                                                                                                                                                                                                                                                                                                   145
                                                                                                                                                                                                                                                                                                                                                                               67
                                                                                                                                                                                                                                                                                               325
                                                                                                                                                                                                                                                                                                                      265
                                                                                                                                                                                                                                                                                                                                 187
                                                                                                                                                                                                                                                                                                                                             205
                                                                                                                                           667
                                                                                                                                                      685
                                                                                                                                                                 607
                                                                                                                                                                             625
                                                                                                                                                                                        547
                                                                                                                                                                                                   565
                                                                                                                                                                                                                487
                                                                                                                                                                                                                           505
                                                                                                                                                                                                                                       427
                                                                                                                                                                                                                                                  445
                                                                                                                                                                                                                                                             367
                                                                                                                                                                                                                                                                        385
                                                                                                                                                                                                                                                                                    307
                                                                                                                                                                                                                                                                                                           247
                                    980
                                                           920
                                                                       847
                                                                                  860
                                                                                                         800
                                                                                                                    727
                                                                                                                               745
                                                907
                                                                                             787
                         967
                                                                                                                                                                                                                                                                                                                                                                                                      μ,
```

```
GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: Falco, Saverio Carl
APPLICANT: Hitz, William D.
APPLICANT: Kinney, Anthony J.
APPLICANT: Kinney, Anthony J.
APPLICANT: Cahoon, Rebecca E.
APPLICANT: Rafalski, J. Antoni
TITLE OF INVENTION: PLANT BRANCHED CHAIN AMINO ACID BIOSYNTHETIC ENZ
FILE REFERENCE: BB-1126
CURRENT APPLICATION NUMBER: US/09/173,300
CURRENT APPLICATION NUMBER: 60/063,423
EARLIER APPLICATION NUMBER: 60/063,423
EARLIER APPLICATION NUMBER: 60/063,423
EARLIER APPLICATION NUMBER: 05/063,423
EARLIER APPLICATION NUMBER: 05/063,423
EARLIER MINING DATE: 1997 October 28
NUMBER OF SEQ ID NOS: 54
SOFTWARE: Microsoft Word Version 7.0A
SEQ ID NO 48
LENGTH: 1112
TYPE: DNA
ORGANISM: Oryza sativa
US-09-173-300-48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                Š
                                                                                                                                                                   δõ
                                                                                                                                                                                                             д
                                                                                                                                                                                                                                                                                 д
                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                               망
                                                                                                                                                                                                                                                                                                                                                                                                                                                              QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ₽
                              δÃ
                                                               В
                                                                                                                                        밁
                                                                                                                                                                                                                                        δõ
                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 3
US-09-173-300-48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 48, Application US/09173300 Patent No. 6451581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 44.7%; Score 462.2; DB 4; Length Best Local Similarity 78.2%; Pred. No. 2.4e-96; Matches 570; Conservative 1; Mismatches 149; Indels
672
                                    618
                                                                                                                                          552
                                                                                                                                                                           498
                                                                                                                                                                                                               492
                                                                                                                                                                                                                                                    438
                                                                                                                                                                                                                                                                                    432
                                                                                                                                                                                                                                                                                                                         378
                                                                                                                                                                                                                                                                                                                                                            372
                                                                                                                                                                                                                                                                                                                                                                                            318
                                                                                                                                                                                                                                                                                                                                                                                                                                 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  147 C------GTCCCCGCGGCCGCTGCTGCCGCGGCGGCAGCAGCTCGCCGTCGTCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       27 GGCGGTGTCCACGGCAGCGCTTCTAGCCCCAATCCGAGCTCCAACCAGCGCGTTTATCCG 86
                                                                 CCGCAGCTGGGTCGCGGCTATCTGCCGGCCCGGCCCTGAAATGCCACCACAGTCGTCCCCT
                   CGTTTTATTAACCACACCTCTGGCAAGGAGTACAAGCTGAAACCAATTGGTGATGCTGG 677
                                                                                                                                                             GCGCATCTTTTTTCGCAACTCCGTGGCCACTGGAGAGGTGTACCCTCTGGAGCTCACGGA 557
                                                                                                                                                                                                                                  GCACGCGCCCGTCGCGCTTGGGGCCGCTGGCGCCACGCGCCATTGTTGCSGAGGGCTACGC 497
                                                                                                                                                                                                                                                                                 CGCCTTCGCGGGGCTCCCATCCGCGGCCTACCCGACGCCGTTCGTCGCTCCGGGTGAGGA 377
                                                                                                                                                                                                                                                                                                                                                                                                                                 GGCCGAGCACCTGACCCTGGTCCCGTCCAAGCCCGACGAGTACCGCAAGCTCGGCTCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCCGAGCACCTCACTCTGGTGCCCTCCAAGCCGGACGACGAGTACCGCAAGCTCGGTTCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGTTTTCCACGGCGAGTGCTTCGTGGTGGGCGACAATATCGACACCGACCAGATCATCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GACCGCCGTGGTCGCCGCCTGCCGGCTGCCGCCGGGGGGGACTCGACGTCGGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGCATCTTCTTCCGCAACTCCGTGGCCACCGGTGAGGTCTACCCGTTGGAGCTAGCGGA
                                                                                                                                                                                                               GCACGCCCCGTCGCCCTGGGCGCCCCGCGCCCCGCCCGTCGTGGCCGAGGGCTACGC
                                                                                                                                                                                                                                                                                                                     GTCCTCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGTGCGGTTCCTCTCGCGA 437
                                                                                                                                                                                                                                                                                                                                                          CGCCTTCGTCGGCCTCCCCCACCGCGGCCTACCCGACGCCGTTCGTCGCCCCCGGGCGAGGA 431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCGGCGCCGGTGACAGCAGTTCTGGCACCGTGTCCCACGCCCTCGAGGACGTTCCGCCG 131
CGTCATGATCAACCACACCACCGGCAAGCAGTACAAGCTGAAGCCTATCGGCGATGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 1112;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ENZYMES
                                                                                                                                                                                                               551
                                                                                                                                                                                                                                                                                    491
                                                                                                                                                                                                                                                                                                                                                                                                                                 371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         251
                                                                                                                                          611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1;
```

```
APPLICANT: Falco, Saverio Carl
APPLICANT: Hitz, William D.
APPLICANT: Kinney, Anthony J.
APPLICANT: Kinney, Anthony J.
APPLICANT: Cahoon, Rebecca E.
APPLICANT: Rafalski, J. Antoni
TITLE OF INVENTION: PLANT BRANCHED CHAIN AMINO ACID BIOSYNTHETIC ENZ
FILE REFERENCE: BB-1126
CURRENT FILING DATE: 1998-10-15
CURRENT FILING DATE: 1998-10-15
EARLIER APPLICATION NUMBER: 60/063,423
EARLIER APPLICATION NUMBER: 60/063,423
EARLIER FILING DATE: 1997 October 28
NUMBER OF SEQ ID NOS: 54
SOETWARE: Microsoft Word Version 7.0A
SEQ ID NO 50
LENGTH: 1107
                                                                                                                                                                                                                                                               QΥ
                                                                                                                                                                                                                                                                                                                                                               Qγ
                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-173-300-50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QΥ
밁
                   Š
                                            В
                                                                  Qγ
                                                                                             밁
                                                                                                               δÃ
                                                                                                                                            밁
                                                                                                                                                              δÃ
                                                                                                                                                                                        Db
                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                          Βb
                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                             ρy
                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; TYPE: DNA
; ORGANISM: Glycine
US-09-173-300-50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity 68.,
430; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 50, Application US/09173300 Patent No. 6451581
645
                                               588
                                                                                              528
                                                                                                                    472
                                                                                                                                             468
                                                                                                                                                                   412
                                                                                                                                                                                            408
                                                                                                                                                                                                                                           351
                                                                                                                                                                                                                                                                                            291
                                                                                                                                                                                                                                                                                                                                          231
                                                                                                                                                                                                                                                                                                                                                                 172
                                                                                                                                                                                                                                                                                                                                                                                        112 CTCCACTCACTAAAATGCCGCCGCGCGTGGGTCCATCGTCCCCGCGGCCGCTGCTGCCGCG 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     678
                       592
                                                                                                                                                                                                                    352
                                                                                                                                                                                                                                                                   292
                                                                                                                                                                                                                                                                                                                  232
                                                                                                                                                                                                                                                                                                                                         GTGGTCACCGTGGACCTTGCTAACTCCGTTTTTATTAACCACACCTCTGGCAAGGAGTAC
                                                                                                           CAAGTCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAAAGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCGCAGTGGTCGCGAGTCGTACGCTAGGATCTTCTTTCGGAACTCCGTGGCCACCGGC
                                                                                                                                                                                                                                           GACGAGTACGAGAAGCTCGGCCTCACGCCCTCATCGGCCTCC---CCGCCACCTACGCC
                                                                                                                                                                                                                                                                  GACGAGTACCGCAAGCTCGGTTCCTTCGCCTTCGCGGGGCTCCCATCCGCGGCCTACCCG
GAGGTGTACCCTCTGGAGCTCACGGACGTTGGGGGCCTGGAAGGAGTGCAAGACAGGGGAT
                                                                                                                                            AACTTCGGTTGCGGCTCCTCCCGCGAGCACGCCCCGTCGCGCGCTGGGCGCCTCCGGCGCC
                                                                                                                                                         AACTTCGGGTGCGGTTCCTCTCGCGAGCACGCGCCCGTCGCGCTTGGGGCCGCTGGCGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   max
                                                                                                                                                                                                                                                                                                                                                                                                                                                   28.2%;
                                             -TCGGAGGGACGCCTCTGCGAGGAGTGCACCACCGGCGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 291.2; DB 4;
Pred. No. 1.8e-57;
1; Mismatches 189;
                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 1107;
                                                                                                                                                                                                                                                                                                                                                                                                                                       6,
                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ENZYMES
                       651
                                                                     591
                                                                                                                                             527
                                                                                                                                                                   47]
                                                                                                                                                                                                                    411
                                                                                                                                                                                                                                                                                           350
704
                                             644
                                                                                              587
                                                                                                                                                                                           467
                                                                                                                                                                                                                                          407
                                                                                                                                                                                                                                                                  351
                                                                                                                                                                                                                                                                                                                  291
                                                                                                                                                                                                                                                                                                                                                                                                                                       2
```

```
Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; OTHER INFORMATION: CDC 1551; OTHER INFORMATION: "n" bases at various positions throughout the sequence; OTHER INFORMATION: represent a, t, c or g
US-09-103-840A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 5
US-09-103-840A-2/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                              Qγ
                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                                                                                                                                                                 Db
                                                                                                                                                                                                                                                                                                                                                                                                                                    Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Db 3927501 GCCCGCGTTGCCGCCGTTGCCGGCGGCGCCCACCGGCCCACCGTCACCGCCGACCCCGCC 3927442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                             Вþ
                                                                                                                   δÃ
                                                                                                                                                             g
  밁
                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 2, Application US/09103840A Patent No. 6294328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
Matches 215; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: DNA SEQUENCES FOR STRATITLE OF INVENTION: TUBERCULOSIS FILE REFERENCE: 24366-24007.00 CURRENT APPLICATION NUMBER: US/99/103,840A CURRENT FILING DATE: 1998-06-24 NUMBER OF SEQ ID NOS: 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: FLEISCHMAN, APPLICANT: WHITE, Owen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: PatentIn Ver. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: FRASER, Claire APPLICANT: VENTER, John C
3927081 TGCCGCCTTGCCGCCTGCACCGCCGGCGCCGCCGGAGCCGTTGGTGCCGCCCACACCGC 3927022
                                                                             3927141 CGCCACCGGCGAAACCAGCACCGGTGGGGTTGTCCGCGCCGGCACCCGGCGCACCTCCGG 3927082
                                                                                                                                                                                                                                                                                                                       3927321
                                                                                                                                                                                                                                                                                                                                                                                                   3927381 CGGCCCCGTTGATGCCGCCGGCGCGCCGCCTGCCGGCCGCCCTTGGCCGCCTTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM: Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                765 GCCAGGAAAACCGGCATGATTCCCTC 790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         712 GCCCGGAAGACAGGAATGATTGCGTC 737
                                                                                                                                                                                                                                                                                                                                                                                                                          138 TEGETCCATCETCCCCGCGGCCGCTGCTGCTGCCGCGGCGGCAGCAGCACCTCGCCGTCGTCAGC 197
                                                                                                                                                                                                318 CGCCTTCGCGGGGCTCCCATCCGCGGCCTACCCGACGCCGTTCGTCGCTCCGGGTGAGGA 377
                                                                                                                                                                                                                                                                              258 CGCCGAGCACCTCACTCTGGTGCCCTCCAAGCCGGACGAGTACCGCAAGCTCGGTTCCTT 317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18 GTCGGGGACGGCGTGTCCACGGCAGCGCTTCTAGCCCCAATCCGAGCTCCAACCAGCGC 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  INFORMATION:
                                     GCACGCGCCGTCGCGCTTGGGGCCCCTGGCGCACGCGCATTGTTGCSGAGGGCTACGC 497
                                                                                                                   GTCCTCCCGCTACGCCATCATTGTCGGCGGAGCCAACTTCGGGTGCGGTTCCTCTCGCGA 437
                                                                                                                                                                                                                                                                                                                                                         CGTTTTCCACGGCGAGTGCTTCGTGGTGGGCGACATATCGACACCGACCAGATCATCCC 257
                                                                                                                                                                                                                                                                                                                     CGCCGTCAAAGCCGGAGAGGCCCAGGCCGAGACCGCTGGCCCCATCGCCGCCGTCACCGC 3927262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTTGTCGCCGAGACCTGCGGCACCGGTTGCCGCCGATCCCGCCGTCGCCGCCGTTGCCGC 3927382
                                                                                                                                                             CGCCGGTACCGGTCGCCCGCCGGCCGCCGGCGCGCGCGCCACCTGTGCCGCCGG 3927142
                                                                                                                                                                                                                                            CGCGGCCGCCGGCCCGATGCCTGCACTACCGGTGGCGCCGACAACGCCGCCGGTGC 3927202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4403765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WHITE, Owen R.
FRASER, Claire M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Robert D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 57.2; DB '
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches 264;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FOR STRAIN ANALYSIS IN MYCOBACTERIUM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 4403765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                         3927322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
```

```
US-08-984-919A-10
                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                             Вb
                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                               US-08-984-919A-10
                                                                                                   US-08-984-919A-12/c
                                                                                                                  RESULT 7
                                                                                                                                                               밁
                                                                                                                                                                                       QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 10, Application US/08984919A Patent No. 6383774
                                                                        Sequence 12, Application US/08984919A Patent No. 6383774
                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEFAX: 970/484-9505
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE: WordPerfect for Windows, CURRENT APPLICATION DATA:
APPLICATION NITMERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME: Verser, Carol Talkington REGISTRATION NUMBER: 37,459 REFERENCE/DOCKET NUMBER: HW-2-0 TELECOMMUNICATION INFORMATION: TELECHONE: 970/493-7272 TELECAX: 970/484-9505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION:
TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Chandrasheka APPLICANT: Mehta, Kapil
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQUENCES:
                                                                                                                                                               1465
                                                                                                                                                                                                                    1345 TTTTGTTTACCTTATGTTACTGTTATTGTATTACTATTTTGCCCCTTGTTTTTTAAAT 1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTORNEY/AGENT INFORMATION:
APPLICANT: Chandrasheka
APPLICANT: Mehta, Kapil
TITLE OF INVENTION: PAR
TITLE OF INVENTION: PRO
                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                      MOLECULE TYPE: cDNA
                                                                                                                                                                                          1033 A 1033
                                                                                                                                                                                                                                                                                                NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRANDEDNESS: single TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US/0:
FILING DATE: 04-DEC-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                    Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH:
                                                                                                                                                             A 1465
                                                                                                                                                                                                                                       80525
                                                                                                                                                                                                                                                                                                                                      81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Fort Collins
                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Colorado
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   E: Heska Corporation
1825 Sharp Point Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1466 nucleotides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chandrashekar, Ramaswamy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          USA
                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IBM PC compatible
                                            Chandrashekar, Ramaswamy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Carol
                                                                                                                                                                                                                                                                                                                                                                                                            2..1099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Talkington Verser,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PARASITIC NEMATODE TRANSCLUTAMINASE PROTEINS, NUCLEIC ACID MOLECULES, AND USES THEREOF 59
                                                                                                                                                                                                                                                                                                                                                    5.5%;
   PARASITIC NEMATODE TRANSGLUTAMINASE PROTEINS, NUCLEIC ACID MOLECULES,
                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HW-2-C2
                                                                                                                                                                                                                                                                                                                                                     Score 57;
Pred. No.
                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Version
                                                                                                                                                                                                                                                                                                                                                     0.00035;
                                                                                                                                                                                                                                                                                                                                                                    DB 4;
                                                                                                                                                                                                                                                                                                                                         40;
                                                                                                                                                                                                                                                                                                                                                                   Length 1466
                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                          0,
                                                                                                                                                                                                                                                                                                                                         Gaps
```

```
рЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                 δõ
                                                                                                                                                                                                                                                                                                                               RESULT 8
US-08-781-420-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-984-919A-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME: Verser, Carol Talkington
REGISTRATION NUMBER: 37,459
REFERENCE/DOCKET NUMBER: HW-2-C2
TELECOMMUNICATION INFORMATION:
TELEPHONE: 970/493-7272
TELEPHONE: 970/484-9505
INFORMATION FOR SEQ ID NO: 12:
SEQUENCE CHARACTERISTICS:
LENGTH: 1466 nucleotides
TEVEE: 010145 26445
                                                                                                                                                                                                                                                                                             Sequence 10, Application US/08781420 Patent No. 6248872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                         GENERAL INFORMATION:
APPLICANT: Chandrashekar, Ramaswamy
APPLICANT: Mehta, Kapil
                                                                                                                                                   TITLE OF INVENTION: Farasitic Nematode Tranglutaminase TITLE OF INVENTION: Proteins, Nucleic Acid Molecules and TITLE OF INVENTION: Uses Thereof NUMBER OF SEQUENCES: 21
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: WordPerfect for Windows, CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: Windows 95
                                                                                                                                                                                                                                                                                                                                                                                                                                     1033 A 1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CORRESPONDENCE ADDRESS
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        122 TTTTGTTTACCTTATGTTACTGTTGTTATTGTATTACTATTTTGCCCCTTGTTTTTTAAAT 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE: Carol Talkington Verser,
ADDRESSEE: Heska Corporation
STREET: 1825 Sharp Point Drive
CITY: Fort Collins
STATE: Colorado
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STATE: Colorado
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STREET: 1825 Sharp Point Drive CITY: Fort Collins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US/0 FILING DATE: 04-DEC-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADDRESSEE: Carol Talkington Verser, ADDRESSEE: Heska Corporation
                                      ZIP: 80525
                                                   COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                  2 A 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               80525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              USA
                                                     USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AND USES THEREOF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US/08/984,919A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HW-2-C2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 57; pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Version 7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 4;
0.00035;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 1466;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
```

```
; LOCATION:
US-08-781-420-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 9
US-08-781-420-12/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 12, Application US/08781420 Patent No. 6248872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:

APPLICANT: Chandrashekar, Ramaswamy

APPLICANT: Mehta, Kapil

TITLE OF INVENTION: Parasitic Nematode Tranglutaminase

TITLE OF INVENTION: Proteins, Nucleic Acid Molecules ar

TITLE OF INVENTION: Uses Thereof
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEFAX: 970/484-330 10: INFORMATION FOR SEQ ID NO: 10: SEQUENCE CHARACTERISTICS: SEQUENCE 1472 nucleotides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1471 A 1471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATTORNEY/AGENT INFORMATION:
NAME: Verser, Carol Talkington
REGISTRATION NUMBER: 37,459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER: IBM PC compatible
OPERATING SYSTEM: Windows 95
SOFTWARE: WorldPerfect for Windows, Version
CURRENT APPLICATION DATA:
                                                                                COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM FC compatible
COMPUTER: Windows 95
OPERATING SYSTEM: Windows 95
SOFTWARE: WordPerfect for Windows, Version 7.0
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1411
APPLICATION NUMBER: US/08/781, FILING DATE: December 3, 1996 CLASSIFICATION: 536 ATTORNEY/AGENT INFORMATION: NAME: Verser, Carol Talkington
                                                                                                                                                                                                                                                                                                           NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1351 TTTTGTTTACCTTATGTTACTGTTGTTATTGTATTTTTTTGCCCTTGTTTTTTAAAT 1410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEPHONE: 970/493-7272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MOLECULE TYPE: cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE: Carol Talkington Verser, Ph.D. ADDRESSEE: Heska Corporation STREET: 1825 Sharp Point Drive CITY: Fort Collins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity 66.9 
les 81; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: nucleic acid
STRANDEDNESS: sing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US/08/781,420 FILING DATE: December 3, 1996
                                                                                                                                                                                                        COUNTRY:
                                                                                                                                                                                                                            STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A 1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             80525
                                                                                                                                                                                                                         Colorado
                                                                                                                                                                                                          USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5.5%;
                                                                  US/08/781,420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 57; DB 4;
Pred. No. 0.00035;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 1472;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

TELEFAX: 970/484-9505 INFORMATION FOR SEQ ID NO:

970/484-9505

0,

REGISTRATION NUMBER: 37,459
REFERENCE/DOCKET NUMBER: HW
TELECOMMUNICATION INFORMATION:
TELEPHONE: 970/493-7272

37,459 ER: HW-2

```
ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-781-420-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-874-102-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 10, Application US/08874102
Patent No. 6309644
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Ramaswamy
APPLICANT: Kapil Meht
TITLE OF INVENTION: I
TITLE OF INVENTION: I
TITLE OF INVENTION: I
                                                                                                     ATTORNEY/AGENT INFORMATION:
NAME: VETSET, CATO! Talkington
REGISTRATION UNUBER: 37,459
REFERENCE/DOCKET NUMBER: HW-2-C1
TELECOMMUNICATION INFORMATION:
TELEPHONE: 970/493-7272
TELEPHAX: 970/484-9505
                                                                                        TELEFAX: 970/484-9505
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
LENGTH: 1472 nucleotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1033 A 1033
                                                                                                                                                                                                                                                       COMPUTER: IBM PC compatible OPERATING SYSTEM: Windows 95 SOFTWARE: Wordperfect for Windows, CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUMBER OF SEQUENCES: 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      122 TTTTGTTTACCTTATGTTACTGTTATTGTATTACTATTTTGCCCCTTGTTTTTTAAAT 63
MOLECULE TYPE:
                                                                        SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: FILING DATE: 12-JUN CLASSIFICATION: 424
                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE: Carol Talkington Verser,
ADDRESSEE: Heska Corporation
STREET: 1825 Sharp Point Drive
                                                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                              STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
es 81; Conserv
                              STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2 A 2
                                                          ENGTH:
                                                                                                                                                                                                                                                                                                                                                   80525
                                                                                                                                                                                                                                                                                                                                                                                           Fort Collins
                                          nucleic acid
                                                                                                                                                                                                                                                                                                                                                                              Colorado
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1472 nucleotides
                                                            1472 nucleotides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ramaswamy Chandrashekar
Kapil Mehta
                                                                                                                                                                                                                                                                                                                                                                USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                 linear
                                                                                                                                                                                                                                                                                                                     Floppy disk
                                                                                                                                                                                                                        12-JUN-1997
                              single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AND USES THEREOF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PARASITIC NEMATODE TRANSGLUTAMINASE PROTEINS, NUCLEIC ACID MOLECULES,
                                                                                                                                                                                                                                           US/08/874,102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 57;
Pred. No.
                                                                                                                                                      HW-2-C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               . 0.00035;
tches 40;
                                                                                                                                                                                                                                                                         Version 7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                          Ph.D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 1472;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
```

```
; NAME/KEY:
; LOCATION:
US-08-874-102-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 11
US-08-874-102-12/c
 B
                                                                                                      US-08-874-102-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 12, Application US/08874102 Patent No. 6309644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local (
                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                 Best Local
                                                                          Query Match
                                                                                                                                                                                             TELEFAX: 970/484-9505
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1471 A 1471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURE:
                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
MEDDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: Windows 95
SOFTWARE: WordPerfect for Windows,
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1033 A 1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1351 TTTTGTTTACCTTATGTTACTGTTATTGTATTACTATTTTGCCCCTTGTTTTTTAAAT 1410
                                                                                                                                                                                                                      ATTORNEY/AGENT INFORMATION:
NAME: Verser, Carol Talkington
REGISTRATION NUMBER: 37,459
REFERENCE/DOCKET NUMBER: HW-2-C
TELECOMMUNICATION INFORMATION:
TELEPHONE: 970/493-7272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Kapil Menta
TITLE OF INVENTION: PAI
TITLE OF INVENTION: PRO
TITLE OF INVENTION: AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQUENCES:
                                                                                                                                                                                SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOLECULE TYPE:
                       Local Similarity
les 81; Conserv
                                                                                                                                                                                              TELEPHONE: 970/484-9505
                                                                                                                                                                                                                                                                                                 FILING DATE: 12
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE: Heska Corporation
                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US/08/874,102 FILING DATE: 12-JUN-1997
                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY: U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STREET:
                                                                                                                                TOPOLOGY:
                                                                                                                                           STRANDEDNESS:
                                                                                                                                                                   LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                    T: 1825 Sharp Point Drive Fort Collins
                                                                 Similarity
                                                                                                                                                       nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                          Colorado
                                                                                                                                                                   1472 nucleotides
                                                                                                                                                                                                                                                                                                                                                                                                                              USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ramaswamy Chandrashekar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
2..1105
                                                                                                                                linear
                                                                                                                                           single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5.5%;
66.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PARASITIC NEMATODE TRANSGLUTAMINASE PROTEINS, NUCLEIC ACID MOLECULES, AND USES THEREOF
                                                                 5.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                    score 57; DB
Pred. No. 0.00
0; Mismatches
                                                                                                                                                                                                                                                  HW-2-C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 57; DB 4;
Pred. No. 0.00035;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                      Version
                                                                  DB 4; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              40;
                                                       40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 1472;
                                                                              Length 1472;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                       0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                        0;
```

Ĵ

밁 Ş 밁 δõ

```
; SEQUENCE DESCRIPTION: SEQ ID NO: 10: US-09-006-595A-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-006-595A-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 10, Application US/09006595A Patent No. 6414115
GENERAL INFORMATION:
                                                                                                                                                            Query Match
Best Local
                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                              INFORMATION FOR SEQ ID NO: 10:
SEQUENCE CHARACTERISTICS:
LENGTH: 1472 nucleotides
                                                                              1351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1033 A 1033
                    1411
                                               973
                                                                                                 Match 5.5%;
Local Similarity 66.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 A 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/781,420
FILING DATE: December 3, 1996
ATTORNEY/AGENT INFORMATION:
NAME: Verser, Carol Talkington
REGISTRATION NUMBER: 37,459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE OF INVENTION: Parasitic Nematode Tranglutaminase Proteins, Nucleic Acid Molecules ar
                                                                                                                                                                                                                                                                                                                                                                                              TELEPAN: 970/484-9505
TELEPAN: 970/484-9505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Chandrashekar, Ramaswamy
Mehta, Kapil
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                      FEATURE:
                                                                                                                                                                                                                                                                                     MOLECULE TYPE: cDNA
                    TTTTGTTTACCTTATGTTACTGTTATTGTATTACTATTTTGCCCCTTGTTTTTAAAT 1410
                                                                                                                                           81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US/09/006,595A FILING DATE: 13-Jan-1998 CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER: IBM PC compatible
OPERATING SYSTEM: Windows 95
SOFTWARE: WordPerfect for Windows, Version 7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STATE: Colorado
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Heska Corporation STREET: 1825 Sharp Point Drive
                                                                                                                                                                                                                                                                                                                 TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CITY: Fort Collins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESSEE: Carol Talkington Verser, Ph.D.
                                                                                                                                                                                                                                                     NAME/KEY:
                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                   linear
                                                                                                                                                                                                                                         CDS
2...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Uses Thereof
                                                                                                                                          Score 57; DB 4;
Pred. No. 0.00035;
0; Mismatches 40
                                                                                                                                                                        DB 4; Length 1472;
                                                                                                                                           40; Indels
                                                                                                                                           0;
                                                                                                                                          Gaps
                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-006-595A-12/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                 RESULT 14
US-08-984-919A-46
                                                                                В
                                                                                                           Qy
                                                                                                                                             B
                                                                                                                                                                       20
                                                                                                                                                                                                         В
                                                                                                                                                                                                                                    Qγ
Sequence 46, Application US/08984919A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 12, Application US/09006595A Patent No. 6414115
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                      Best Local
                                                                                                                                                                                                                                                                                                                                                                                          TELEPHONE: 970/493-7272
TELEFAX: 970/484-9505
INFORMATION FOR SEQ ID NO: 12:
SEQUENCE CHARACTERISTICS:
LENGTH: 1472 nuclectides
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1471 A 1471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1033 A 1033
                                                                                                              1033 A 1033
                                                                                2 A 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ZIP: 80525
COMPUTER READABLE FORM:
MEDIUM TYPE: FLOPPY disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQUENCES: 21 CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY: USA
                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                  5.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Uses Thereot
```

δÃ ф Qγ

В

; TOPOLOGY: linear; MOLECULE TYPE: cDNA SEQUENCE DESCRIPTION: SEQ ID NO: 12: US-09-006-595A-12 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/006,595A
APPLICATION DATA:
FILING DATE: 13-Jan-1998
CLASSIFICATION: <Unknown>
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/781,420
FILING DATE: December 3, 1996
ATTORNEY/AGENT INFORMATION: 122 TTTTGTTTACCTTATGTTACTGTTATTGTATTACTATTTTGCCCCTTGTTTTTTAAAT 63 NAME: Verser, Carol Talkington REGISTRATION NUMBER: 37,459 REFERENCE/DOCKET NUMBER: HW-2 TELECOMMUNICATION INFORMATION: APPLICANT: Chandrashekar, Ramaswamy Mehta, Kapil ADDRESSEE: Carol Talkington Verser, Ph.D.
Heska Corporation
STREET: 1825 Sharp Point Drive
CITY: Fort Collins
STATE: Colorado COMPUTER: IBM PC compatible
OPERATING SYSTEM: Windows 95
SOFTWARE: WordPerfect for Windows, Version 7.0 Parasitic Nematode Tranglutaminase Proteins, Nucleic Acid Molecules as 0; Mismatches Score 57; DB 4; Pred. No. 0.00035; 40; Length 1472; Indels and Gaps

0

```
Q
                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; NAME/KEY: CDS
; LOCATION: 24..1508
US-08-984-919A-46
                                                                                                                                                                        US-08-984-919A-48/c
                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                         50
                                                                                                                                                                                            RESULT 15
                                                                                                                                       Sequence 48, Application US/08984919A Patent No. 6383774
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 5.5%;
Best Local Similarity 66.9%;
Matches 81; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Patent No. 6383774
GENERAL INFORMATION:
                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX: 970/484-9505
INFORMATION FOR SEQ ID NO: 46:
               APPLICANT: Chandrashekar, Ramaswamy
APPLICANT: Mehta, Kapil
TITLE OF INVENTION: PARASITIC NEMATODE TRANSGLUTAMINASE
TITLE OF INVENTION: PROTEINS, NUCLEIC ACID MOLECULES,
TITLE OF INVENTION: AND USES THEREOF
NUMBER OF SEQUENCES: 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME: Verser, Carol Talkington REGISTRATION NUMBER: 37,459 REFERENCE/DOCKET NUMBER: HW-2-C TELECOMMUNICATION INFORMATION: TELEBHONE: 970/493-7272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPOTER: IBM PC compatible
OPERATING SYSTEM: Windows 9
SOFTWARE: WordPerfect for Windows, Version 7.0
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                 1033 A 1033
                                                                                                                                                                                                                                                                                                                                                                                         1754 TTTTGTTTACCTTATGTTACTGTTATTGTATTACTATTTTGCCCTTGTTTTTTAAAT 1813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                 1874 A 1874
                                                                                                                                                                                                                                                                                                                     FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE CHARACTERISTICS:
LENGTH: 1875 nucleotides
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MOLECULE TYPE: cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE OF INVENTION:
TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                      ADDRESSEE: Carol Talkington Verser, Ph.D.
ADDRESSEE: Heska Corporation
STREET: 1825 Sharp Point Drive
CITY: Fort Collins
STATE: Colorado
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US/08/984,919A FILING DATE: 04-DEC-1997 CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              80525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              970/484-9505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Chandrashekar, Ramaswamy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         E: Floppy disk
IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Kapi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PARASITIC NEMATODE TRANSGLUTAMINASE
PROTEINS, NUCLEIC ACID MOLECULES,
AND USES THEREOF
                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HW-2-C2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 57; DB 4;
Pred. No. 0.00037;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 4; Length 1875
                                                                                                                                                                                                                                                                                                                                                                                                                                                             40; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
```

```
Search completed: April 3, 2003, 04:39:51 Job time: 1467 secs
                                                                    밁
                                                                                               δÃ
                                                                                                                                  밁
                                                                                                                                                                δÃ
                                                                                                                                                                                                  밁
                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                             ; TOPOLOGY: 11; MOLECULE TYPE: US-08-984-919A-48
                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX: 970/484-9505
INFORMATION FOR SEQ ID NO: 48:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME: Verser, Carol Talkington REGISTRATION NUMBER: 37,459 REFERENCE/DOCKET NUMBER: HW-2-CTELECOMMUNICATION INFORMATION: TELEPHONE: 970/493-7272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US/0:
FILING DATE: 04-DEC-1997
CLASSIFICATION: 536
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OPERATING SYSTEM: Windows 95
SOFTWARE: WordPerfect for Windows, Version
CURRENT APPLICATION DATA:
                                                                                                  1033 A 1033
                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
LENGTH: 1875 nucleotid
                                                                                                                                                122 TTTTGTTTACCTTATGTTACTGTTGTTATTGTATTACTATTTTTGCCCCTTGTTTTTTAAAT 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STREET: 1825 Sharp Point Drive
CITY: Fort Collins
STATE: Colorado
                                                                                                                                    TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                             Match 5.5%;
Local Similarity 66.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE: Carol Talkington Verser, Ph.D. ADDRESSEE: Heska Corporation
                                                                   2 A 2
                                                                                                                                                                                                                                                               81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              80525
                                                                                                                                                                                                                                                                                                                                                                                                            1875 nucleotides
                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            USA
                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                               CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US/08/984,919A
                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HW-2-C2
                                                                                                                                                                                                                                                              Score 57; DB 4; Length 1875; Pred. No. 0.00037; Mismatches 40; Indels
                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                              Gaps
```

0;

```
Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OM protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Post-processing:
                                                            Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        seg
seg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             •
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein search, using sw model
                                                                                                                                                                                                                     A_Geneseq_101002:*

1: /SIDS2/gcgdata/gcgdata/gcgdata/gcgdata/gcgdata/gcgdata/gcgdata/gcgdata/gcgdata/gcgdata/gcgdata/gcgdata/gcgdata/gcgdata/gcgdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/gcggdata/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-027-450-47
1266
1 MAAALSGTAVSTAALLAPIR.....AGGIFAYARKTGMIASKAAA 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            March 31, 2003, 09:04:48; Search time 36 Seconds (without alignments) 921.650 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  908470 seqs, 133250620 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                 1: \(\sins2\)\geqdata\geneseq\geneseq\-emb1\Aa198\)\DAT: *
2: \(\sins2\)\geqdata\geneseq\geneseq\-emb1\Aa198\)\DAT: *
2: \(\sins2\)\geqdata\geneseq\geneseq\-emb1\Aa198\)\DAT: *
3: \(\sins2\)\geqdata\geneseq\geneseq\-emb1\Aa198\)\DAT: *
4: \(\sins2\)\geqdata\geneseq\geneseq\-emb1\Aa198\)\DAT: *
5: \(\sins2\)\geqdata\geneseq\geneseq\-emb1\Aa198\)\DAT: *
5: \(\sins2\)\geqdata\geneseq\geneseq\-emb1\Aa198\)\DAT: *
6: \(\sins2\)\geqdata\geneseq\geneseq\-emb1\Aa198\)\DAT: *
6: \(\sins2\)\geqdata\geneseq\geneseq\-emb1\Aa198\)\DAT: *
7: \(\sins2\)\geqdata\geneseq\geneseq\-emb1\Aa198\)\DAT: *
8: \(\sins2\)\geqdata\geneseq\geneseq\-emb1\Aa198\)\DAT: *
9: \(\sins2\)\geqdata\geneseq\geneseq\-emb1\Aa198\)\DAT: *
9: \(\sins2\)\geqdata\geneseq\geneseq\-emb1\Aa198\)\DAT: *
10: \(\sins2\)\geqdata\geneseq\geneseq\-emb1\Aa199\)\DAT: *
11: \(\sins2\)\geqdata\geneseq\geneseq\geneseq\-emb1\Aa199\)\DAT: *
11: \(\sins2\)\geqdata\geneseq\geneseq\geneseq\-emb1\Aa199\)\DAT: *
12: \(\sins2\)\geqdata\geneseq\geneseq\geneseq\-emb1\Aa199\)\DAT: *
13: \(\sins2\)\geqdata\geneseq\geneseq\geneseq\-emb1\Aa199\)\DAT: *
14: \(\sins2\)\geqdata\geneseq\geneseq\geneseq\-emb1\Aa199\)\DAT: *
15: \(\sins2\)\geqdata\geneseq\geneseq\geneseq\geneb1\Aa199\)\DAT: *
16: \(\sins2\)\geqdata\geneseq\geneseq\geneseq\geneb1\Aa199\)\DAT: *
16: \(\sins2\)\geqdata\geneseq\geneseq\geneseq\geneb1\Aa199\)\DAT: *
17: \(\sins2\)\geqdata\geneseq\geneseq\geneseq\geneb1\Aa199\)\DAT: *
18: \(\sins2\)\geqdata\geneseq\geneseq\geneseq\geneb1\Aa199\)\DAT: *
20: \(\sins2\)\geqdata\geneseq\geneseq\geneb1\Aa199\)\DAT: *
21: \(\sins2\)\geqdata\geneseq\geneseq\geneb1\Aa199\)\DAT: *
22: \(\sins2\)\geqdata\geneseq\geneseq\geneb1\Aa199\DAT: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         908470
```

Result	Score	Query	Query Match Length DB	BG .	ID	Description
	1266	100.0	249	21	AAY28439	•
2	1226	96.8	244	21	AAY28442	LeuD subun:
ω	994.5	78.6	257	21	AAY28440	Rice leuD :
4	740.5	58.5	263	21	AAY28441	LeuD subunit of 3-
G	710.5	56.1	251	21	AAG26403	Arabidopsis
6	710.5	56.1	251	21	AAG42502	Arabidopsis
7	710.5	56.1	251	23	ABB92091	Herbicidall
89	710.5	56.1	261	21	AAG26402	Arabidopsis thalia
9	710.5	56.1	261	21	AAG42501	Arabidopsis
10	651	51.4	253	23	ABB92729	Herbicidall

112 8.8 889 23 ABB57134	112 8.8 417 21 AABS8362 Lings	114.5 9.0 160 22 AAG81975 S. e	115.5 9.1 780 22 AAB84333	115.5 9.1 780 20 AAW98947	119.5 9.4 139 23 ABP32235	120 9.5 200 22 AAU36055	125 9.9 639 21 AAY74438	125.5 9.9 869 21 AAY93285	.9 639 21 AAY74439	125.5 9.9 557 22 AAB79519	125.5 9.9 553 22 AAB79520	126 10.0 868 21 AAY93301	126 10.0 639 21 AAY74440	127.5 10.1 902 22 ABB61080	130 10.3 943 22 AAG91445	134 10.6 197 22 AAB79772	134 10.6 197 22 AAG91199 C	151 11.9 200 22 AAU35572	153.5 12.1 201 22 AAU34427	155 12.2 190 22 AAU36564	155.5 12.3 201 22 AAU38423	162 12.8 164 18 AAW28261	164.5 13.0 644 22 AAU34234	166 13.1 189 23 ABP39041	174.5 13.8 193 23 ABB48173	184 14.5 212 22 AAU36307	191.5 15.1 191 23 ABB54553 ·	191.5 15.1 191 15 AAR54217 L.	202 16.0 163 21 AAB15395	206.5 16.3 163 22 AAB96132	258.5 20.4 164 22 AAB96359	627 49.5 256 23 ABB92092	627 49.5 256 23 ABB92090	644.5 50.9 256 23 ABB92089
Mouse ischaemic co	Cancer as	epidermid	Ω	ı		iella	eria g	Amino acid sequenc	Neisseria meningit	Corynebacterium gl	Corynebacterium gl	Amino acid sequenc	Neisseria meningit	Drosophila melanog	C glutamicum prote	orynebacteri	glutamicum	_	E. coli cellular p	_	nella			coccus ep	nocyto	aeruq	ctococc	ຜ	thermophi	tive 3-isopro	ve 3- <u>i</u> s	idally	lly act	Herbicidally activ

## ALIGNMENTS

ARESULT 1
AAV28439
ID AAV2
XX AAV2
AC AAV2
XX COIN
COIN
KW COIN
KW DIAN
KW DIAN
KW DIAN
KW OO99
AVX WO99
AVX OO-0
PR 20-0
AVX OO-0
PR 28-0
AVX OO-0
PR 28-0
AVX OO-0
AVX OO-0 AAY28439 standard; Protein; 249 AA. 15-FEB-2000 (first entry) AAY28439;

Corn leuD subunit of 3-isopropylmalate dehydratase amino acid sequence

Corn; soybean; wheat; rice; dihydroxyacid dehydratase; leuC; leuD; branched chain amino acid transferase; biosynthetic enzyme; antibody; 3-isopropylmalate dehydratase.

Zea mays.

WO9921880-A2

06-MAY-1999.

20-OCT-1998; 98WO-US22081

28-OCT-1997; 97US-0063423.

(DUPO ) DU PONT DE NEMOURS & CO

Falco SC, Cahoon RE, Hitz WD, Kinney AJ, Rafalski JA;

WPI; 2000-022904/02

N-PSDB; AAX89462

Nucleic acid fragments encoding branched chain amino acid biosynthetic enzymes  $\,\,\,$ 

```
RESULT 2
AAY28442
ID AAY2
XX AAY2
AC AAY2
XX LeuD
XX LeuD
XX Corn
KW Corn
KW Bran
KW 3-is
XX W099
XX W099
XX W099
XX W099
XX W099
XX U099
XX W099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                substantial portion of dihydroxyacid dehydratase, a branched chain amino acid transferase, a leuC or a leuD subunit of 3 'Isopropylmalate dehydratase from wheat, corn, soybean or rice. These enzymes are involved in biosynthesis and utilization of branched-chain amino acids. The nucleic acid sequences can be used to alter the level of expression of a branched chain amino acid biosynthetic enzyme in a host cell. They can also be used to obtain a nucleic acid fragment encoding a branched chain amino acid biosynthetic enzyme. The encoded proteins may be used to prepare antibodies for detecting the proteins in situ in cells, or in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAY28439-Y28442 are fragments of corn, soybean, wheat and rice leub subunit of 3-isopropylmalate dehydratase, amino acid sequences. Sequences AAX89442-X89465 are nucleic acid fragments that encode all or a
                         Falco SC,
                                                                                                                        28-OCT-1997;
                                                                                                                                                                                                                                                                                                                 Triticum aestivum
                                                                                                                                                                                                                                                                                                                                                               3-isopropylmalate
                                                                                                                                                                                                                                                                                                                                                                                            branched
                                                                                                                                                                                                                                                                                                                                                                                                                                                       LeuD subunit of 3-isopropylmalate dehydratase amino acid sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAY28442;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAY28442 standard; Protein; 244 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim
                                                                                                                                                                      20-OCT-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15-FEB-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 vitro in cell extracts.
                                                                       (DUPO ) DU PONT DE NEMOURS & CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GMIASKAAA 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APGEESSRYAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SPSSAVFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFV 120
                                                                                                                                                                                                                                                                                                                                                                                       soybean;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LELTDVGAWKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGDAGPVIEAGGIFAYARKT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LELTDVGAMKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGDAGPVIEAGGIFAYARKT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APGEESSRYAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SPSSAVFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GMIASKAAA 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           al Similarity
249; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Fig 7;
                       Cahoon RE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        249 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                        97us-0063423
                                                                                                                                                                                                                                                                                                                                                                                                              wheat; rice; dihydroxyacid dehydratase; leuC; leuD;
                                                                                                                                                                      98WO-US22081
                                                                                                                                                                                                                                                                                                                                                                                         amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         102pp;
                                                                                                                                                                                                                                                                                                                                                               dehydratase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%;
                         Hitz WD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            English.
                                                                                                                                                                                                                                                                                                                                                                                         transferase; biosynthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 1266; DB 21;
Pred. No. 1.5e-119;
                       Kinney AJ,
                                                                       EI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                         Rafalski
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 249;
                                                                                                                                                                                                                                                                                                                                                                                       enzyme;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
```

```
ARYSULT 3
AAY28440
ID AAY2
XX AAY2
XX AAY2
XX AAY2
DT 15-F
XX COrn
KW Dran
KW 3-is
XX Oryz
XX Oryz
XX Oryz
XX O099
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ΩV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
Matches 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAY28439-Y28442 are fragments of corn, soybean, wheat and rice leub subunit of 3-isopropylmalate dehydratase, amino acid sequences. Sequences AAX89442-X89465 are nucleic acid fragments that encode all or a substantial portion of dihydroxyacid dehydratase, a branched chain amino acid transferase, a leuc or a leub subunit of 3-isopropylmalate dehydratase from wheat, corn, soybean or rice. These enzymes are involved in biosynthesis and utilization of branched-chain amino acids. The nucleic acid sequences can be used to alter the level of expression of a branched chain amino acid biosynthetic enzyme in a host cell. They can amino acid biosynthetic enzyme, and to identify inhibitors of a branched chain amino acid biosynthetic enzyme. The encoded proteins may be used to prepare antibodies for detecting the proteins in situ in cells, or in vitro in cell extracts.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 200
N-PSDB;
 28-OCT-1997;
                                                                      06-MAY-1999
                                                                                                                                                                            3-isopropylmalate dehydratase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 16; Fig 7; 102pp; English
                                    20-OCT-1998;
                                                                                                          W09921880-A2
                                                                                                                                            Oryza sativa
                                                                                                                                                                                              Corn; soybean; wheat; rice; dihydroxyacid dehydratase; leuC; branched chain amino acid transferase; biosynthetic enzyme; a
                                                                                                                                                                                                                                               Rice leuD subunit of 3-isopropylmalate dehydratase amino acid sequence.
                                                                                                                                                                                                                                                                                       15-FEB-2000
                                                                                                                                                                                                                                                                                                                                                           AAY28440 standard; Protein; 257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Nucleic acid fragments encoding branched chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                   244 A 244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   249 A 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              64 GECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGEESSR 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4 AVSTAALLAPIRAPTSAFIRRSQLTCHRLHSLKCRRAGSIVPAAAAAAAAGSSSPSSAVFH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AVSTAALLAPIRAPTSAFIRRSQLTCHRLHSLKCRRAGSIVPAAAAAAAAGSSSPSSAVFH 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2000-022904/02
DB; AAX89465.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGDAGPVIEAGGIFAYARKTGMIASKAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WKECKTGDYVTVDLANSVFINHTSGKEYKLKPIGDAGPVIEAGGIFAYARKTGMIASKAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            YAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVGTGEVYPLELTDVGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             YAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVGA 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGEESSR 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             244 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                     (first entry)
                                    98WO-US22081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    96.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 1226;
Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 21;
1.6e-115;
nes 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                amino acid biosynthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         244;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      63
```

```
RESULT 4
AAV2841
ID AAYY
XX
AC AAYY
AC AAYY
XX
AC AAYY

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAY28439-Y28442 are fragments of corn, soybean, wheat and rice leub subunit of 3-isopropylmalate dehydratase, amino acid sequences. Sequences AAX89442-X89465 are nucleic acid fragments that encode all or a substantial portion of dihydroxyacid dehydratase, a branched chain amino acid transferase, a leuc or a leub subunit of 3-isopropylmalate dehydratase from wheat, corn, soybean or rice. These enzymes are involved in biosynthesis and utilization of branched-chain amino acids. The nucleic acid sequences can be used to alter the level of expression of a branched chain amino acid biosynthetic enzyme in a host cell. They can also be used to obtain a nucleic acid fragment encoding a branched chain amino acid biosynthetic enzyme. The encoded proteins may be used to prapare antibodies for detecting the proteins in situ in cells, or in
                                                                                                                                   Corn; soybean; wheat; rice; dihydroxyacid dehydratase; leuC; leuD; branched chain amino acid transferase; biosynthetic enzyme; antibody; 3-isopropylmalate dehydratase.
Misc-difference
                                                                                    Glycine
                                                                                                                                                                                                                                                      LeuD subunit of 3-isopropylmalate dehydratase amino acid sequence
                                                                                                                                                                                                                                                                                                                    15-FEB-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                     AAY28441 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     vitro in cell extracts.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (DUPO ) DU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MAAALSGTAVSTA-----ALLAPIRAPTSAFIRRSQLTCHRLHSLKC---RRAGSIVPA 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GIFAYARKTGMIASKSA 257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GIFAYARKTGMIASKAA 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAAAAAGSSSPSSAVFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLP 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SVATGEVYPLELTDVGAWKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGDAGPVIEAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SAAYPTPFVAPGEESSRYAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRN 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAAAAAAGDSTSAGVFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFVGLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MAAAAAAAPALSLAEAAPVTAVLAPCPTPSRTFRRRSWVAAICRPALKCHHSRPLTAVVAA 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SVATGEVYPLELADTGAWKECKTGDVVTVELDNCVMINHTSGKQYKLKPIGDAGPVIEAG
                                                                                       max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  acid fragments encoding branched chain amino acid biosynthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fig 7; 102pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PONT DE NEMOURS & CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ą,
                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         78.6%;
77.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hitz
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18;
                                                                                                                                                                                                                                                                                                                                                                                                                                     263 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Æ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 994.5; DB 2
Pred. No. 4.2e-92;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Kinney
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ΑJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Rafalski
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        257;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               08T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2
```

```
RESULT 5
AAG26403
ID AAG2
XX
AC AAG2
XX
DT 17-C
XX
                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                      QY
                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                               Ωy
                                                                                                                                      맑
                                                                                                                                                                                        ф
                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Nucleic
enzymes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         in biosynthesis and utilization of branched-chain amino acids. The nucleic acid sequences can be used to alter the level of expression of a branched chain amino acid biosynthetic enzyme in a host cell. They can amino acid biosynthetic acid fragment encoding a branched chain amino acid biosynthetic enzyme, and to identify inhibitors of a branched chain amino acid biosynthetic enzyme. The encoded proteins may be used to prepare antibodies for detecting the proteins in situ in cells, or in vitro in cell extracts.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAY28439-Y28442 are fragments of corn, soybean, wheat and rice leub subunit of 3-isopropylmalate dehydratase, amino acid sequences. SAX89442-X89465 are nucleic acid fragments that encode all or a substantial portion of dihydroxyacid dehydratase, a branched chain amino acid transferase, a leuC or a leub subunit of 3-isopropylmalate dehydratase from wheat, corn, soybean or rice. These enzymes are involved dehydratase from wheat, corn, soybean or rice.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N-PSDB; AAX89464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Falco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20-OCT-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          06-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO9921880-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (DUPO ) DU PONT DE NEMOURS & CO
                                                                                                                                                                                                                    177
                                                                                                                                                                                                                                              135
                                                                                                                                      254
                                                                                                                                                               237
                                                                                                                                                                                                                                                                         117
                                                                                                                                                                                                                                                                                                    77
                                                                                                                                                                                                                                                                                                                              57
                                                                                                                                                                                                                                                                                                                                                         20
                                                                                                                                                                                                                                                                                                                                                                                  8 TAVSTAALLAPIRAPTSAFIRRSQLTCHRL------HSLKCRRAGSIVPAAAAAA 56
                                                                                                                                                                                                                                                                                                 2000-022904/02
                                                                                                                                      ARKTGMIPSR
                                                                                                                                                                                                          EVYPLELTDVGAWKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGDAGPVIEAGGIFAY
                                                                                                                                                                                                                                                             TPFVAPGEESSRYAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATG
                                                                                                                                                             ARKTGMIASK
                                                                                                                                                                                           EVYPLE-SEGRLCEECTTGDVVTIELGESRLINHTTGKEYRLKPIGDAGPVIEAGGIFAY
                                                                                                                                                                                                                                                TRFIEPGEIKTKYAIVIGGANFGCGSSREHAPVALGASGAAAVVAESYARIFFRNSVATG
                                                                                                                                                                                                                                                                                                                                                         TRESSAATVLP----RNLAFTKLSLSHSHTLLPRFLSFPTPKSSNPRNRVAVSLQTPRAQS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sc,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 acid fragments encoding branched chain amino acid biosynthetic
                                                                                                                                                                                                                                                                                                                                                                                                            Similarity 62.8
57; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Fig 7; 102pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cahoon RE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   263 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98WO-US22081
                                                                                                                                      263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /label= unknown
/note= "encoded
                                                                                                                                                                                                                                                                                                                                                                                                                          58.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hitz WD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   English.
                                                                                                                                                                                                                                                                                                                                                                                                              24;
                                                                                                                                                                                                                                                                                                                                                                                                                          Score 740.5; DE Pred. No. 2e-66;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 bу
                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Kinney AJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TAG
                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 21;
                                                                                                                                                                                                                                                                                                                                                                                                            52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Rafalski
                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                        263;
                                                                                                                                                                                                                                                                                                                                                                                                              17;
                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                194
                                                                                                                                                                                                                                                                                                                                                         76
```

17-OCT-2000

(first entry)

AAG26403;

AAG26403 standard;

Protein;

251

Ã

7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	אם אם אם אל	מים אקי קי ק	DE XXX XXX XXX XXX XXX XXX XXX XXX XXX X
18-JUN-1999 18-JUN-1999 18-JUN-1999 18-JUN-1999 18-JUN-1999 18-JUN-1999 18-JUN-1999 18-JUN-1999 18-JUN-1999 18-JUN-1999	11-MAY-1999; 991 14-MAY-1999; 991 14-MAY-1999; 991 14-MAY-1999; 991 14-MAY-1999; 991 18-MAY-1999; 991 20-MAY-1999; 991 21-MAY-1999; 991 24-MAY-1999; 991 24-MAY-1999; 991 25-MAY-1999; 991 27-MAY-1999; 991 27-MAY-1999; 991 28-MAY-1999; 991 29-MAY-1999; 991 21-JUN-1999; 991 10-JUN-1999; 991 11-JUN-1999; 991	23-MAR-1999; 25-MAR-1999; 25-MAR-1999; 01-APR-1999; 06-APR-1999; 16-APR-1999; 19-APR-1999; 19-APR-1999; 23-APR-1999; 23-APR-1999; 23-APR-1999; 23-APR-1999; 24-MAY-1999; 06-MAY-1999; 06-MAY-1999; 06-MAY-1999;	rabidop rotein ybridis erminat erabidop P103340 6-SEP-2 5-FEB-2 5-FEB-1
99US-0139456. 99US-0139457. 99US-0139458. 99US-0139459. 99US-0139461. 99US-0139462. 99US-0139463. 99US-0139750. 99US-0139750. 99US-0139763.	99US-0134256. 99US-0134218. 99US-0134219. 99US-0134270. 99US-0134768. 99US-0135533. 99US-0135533. 99US-0135629. 99US-0135629. 99US-0135629. 99US-0136392. 99US-0137528. 99US-0137528. 99US-0137528. 99US-0137524. 99US-0138640. 99US-0138640. 99US-0138643. 99US-0138453. 99US-0139453. 99US-0139453.	990S-0125788 990S-0126264 990S-0126785. 990S-0127462. 990S-0129814. 990S-013087. 990S-013087. 990S-0130891. 990S-0130449. 990S-013048. 990S-0132486. 990S-0132486. 990S-0132486. 990S-0132486.	sis thaliana protein fragment SEQ ID NO: 30845. identification; signal transduction pathway; metabolic pathway; ation assay; genetic mapping; gene expression control; promoter; ion sequence.  sis thaliana.  f 5-A2.  000. 000. 2000EP-0301439. 999; 99US-01231825. 999; 99US-0123180.
22 22 22 22 22 22 22 22 22 22 22 22 22	אק ק אק אק אק אק אק אק אק אק אק אק אק אק אק	אק אק אקק אקק אקק אקק אקק אקק אקק אקק א	אק אק אק אק אק אק אק אק אק אק אק אק אק א
18-AUG-11 20-AUG-11 20-AUG-11 20-AUG-11 23-AUG-11 23-AUG-11 25-AUG-11 26-AUG-11 27-AUG-11 27-AUG-11	23-JUL 23-JUL 26-JUL 27-JUL 27-JUL 27-JUL 27-JUL 27-JUL 27-JUL 27-JUL 02-AUG 02-AUG 03-AUG 04-AUG 05-AUG 05-AUG 05-AUG 05-AUG 05-AUG 11-AUG 11-AUG	16-JUL-19 19-JUL-19 19-JUL-19 19-JUL-19 19-JUL-19 19-JUL-19 19-JUL-19 20-JUL-19 20-JUL-19 20-JUL-19 21-JUL-19	199
2020202020	99US-014-5224. 99US-014-5234. 99US-014-5913. 99US-014-5913. 99US-014-5951. 99US-014-6386. 99US-014-6386. 99US-014-7038. 99US-014-7038. 99US-014-704. 99US-014-704. 99US-014-7192. 99US-014-7193.	)14 )114 )114 )114 )114 )114 )114 )114	114 114 114 114 114 114 114 114 114 114

```
SPSSA-----VFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSA 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MAAALSGTAVSTAALLAPIRAPTSAFIRRSQLTCHRLHSLKCRRAGSIVPAAAAAAAAGSS
                                                                                                                            MAASLQSANPTLSRTLASPNKPSSFATFRSPFL--RFNSTSV--ASNFKPLVSREASSSF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 710.5; DB 2
Pred. No. 2.1e-63;
7; Mismatches 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21; Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           251;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                           173
                                                                                                                            234
                                                                                                                                                                         231
                                                                                                                                                                                                                           175
                                                                                                                                                                                                                                                                                                                                                                                                                          56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6;
RESULT 6
AAG42502
AAG42502
AAG4
AXC AAG
25-FEB-1999
05-MAR-1999
09-MAR-1999
23-MAR-1999
25-MAR-1999
25-MAR-1999
26-APR-1999
27-APR-1999
28-APR-1999
28-APR-1999
28-APR-1999
28-APR-1999
28-APR-1999
28-APR-1999
28-APR-1999
29-APR-1999
21-APR-1999
21-APR-1999
21-MAY-1999
21-MAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter; termination sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAG42502 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      06-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EP1033405-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Arabidopsis thaliana protein fragment SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAG42502;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      25-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000EP-0301439
990S-0121825.
990S-0123548.
990S-0125788.
990S-0125788.
990S-0126785.
990S-0126734.
990S-0128714.
990S-0130449.
990S-0130810.
990S-0130449.
990S-0132484.
990S-0132487.
990S-0134718.
990S-0134718.
990S-0134779.
990S-0135124.
990S-0135124.
990S-0135124.
990S-0135124.
990S-0135124.
990S-0135124.
990S-013529.
990S-013529.
990S-013529.
990S-013529.
990S-013529.
990S-013529.
990S-013529.
990S-013529.
990S-013529.
990S-0135452.
990S-0138454.
990S-0138454.
990S-0138454.
990S-0138454.
990S-0138454.
990S-0138454.
990S-0138454.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 53014.
```

30-AUG-1999
31-AUG-1999
01-SEP-1999
10-SEP-1999
11-SEP-1999
13-SEP-1999
22-SEP-1999
23-SEP-1999
24-SEP-1999
24-SEP-1999
24-SEP-1999
26-CCT-1999
07-CCT-1999

990S-0151303
990S-01513133
990S-01513363
990S-0153673
990S-0154018
990S-0154018
990S-0155465
990S-01554569
990S-0156569
990S-0157753
990S-0157753
990S-0158029
990S-0158029
990S-0158029
990S-0159331
990S-0159331
990S-0159331
990S-0159331
990S-0159331
990S-0159331
990S-0160767
990S-0160767
990S-0160767
990S-0160768
990S-0160769
990S-0161404

5 밁 δ B Ω В S 밁 Qy

232

GIFAYARKAGMIPSAAA GIFAYARKTGMIASKAA

251 248 116

114 57 61 Query Ma Best Loc Matches

 $\vdash$ H Match Local Similarity les 153; Conserv

56.1%; 59.5%;

Conservative

27;

```
밁
             δÃ
                         Ъ
                                         Qy
                                                          В
                                                                       Qy
                                                                                                                       Query Match
Best Local Sim
Matches 153;
                                                                                                                     20-AUG-1999
23-AUG-1999
23-AUG-1999
25-AUG-1999
26-AUG-1999
27-AUG-1999
28-SEP-1999
28-SEP-1999
29-SEP-1999
29-SEP-1999
20-CCT-1999
21-CCT-1999
22-CCT-1999
22-CCT-1999
23-CCT-1999
24-CCT-1999
25-CCT-1999
26-CCT-1999
27-CCT-1999
28-CCT-1999
116
              114
                            57
                                            61
                                                          ш
                                                                         -
                                                         SYKERFVQPGEMKTKYSIIIGGENFGCGSSREHAPVCLGAAGAKAVVAQSYARIFFRNSV
                           56.1:
Similarity 59.5:
3; Conservative
                                                                                                                     9908 0149723
9908 0149923
9908 0150056
9908 0151065
9908 0151065
9908 0151163
9908 0151143
9908 0151263
9908 015263
9908 015263
9908 015263
9908 0153758
9908 0154018
9908 0154018
9908 0155456
9908 0155453
9908 0156458
9908 0156656
9908 0156658
9908 0156658
9908 0156676
9908 0156676
9908 015923
9908 015923
9908 015923
9908 015923
9908 015923
9908 015923
9908 015923
9908 015923
9908 015923
9908 015923
9908 015923
9908 015923
9908 015923
9908 015923
9908 015923
9908 015923
9908 015923
9908 015923
9908 015923
9908 015923
9908 015923
9908 0160741
9908 0160741
9908 0160741
                                                                                         .1%;
6 5%;
                                                                                       ; Score 710.5; DB 21; Pred. No. 2.1e-63; 27; Mismatches 62;
                                                                                                     21;
                                                                                       Indels
                                                                                                      Length
                                                                                                       251;
                                                                                       15;
                                                                                       Gaps
              173
175
                                                          56
                                                                         60
                                                                                         6;
```

18-JUN-1999
18-JUN-1999
18-JUN-1999
18-JUN-1999
18-JUN-1999
18-JUN-1999
18-JUN-1999
18-JUN-1999
18-JUN-1999
21-JUN-1999
22-JUN-1999
23-JUN-1999
23-JUN-1999
23-JUN-1999
23-JUN-1999
23-JUN-1999
24-JUN-1999
24-JUN-1999
25-JUN-1999
26-JUL-1999
16-JUL-1999
16-JUL-1999
17-JUL-1999
18-JUL-1999
19-JUL-1999
19-JUL

990S-0139458
990S-0139461
990S-0139461
990S-0139461
990S-0139463
990S-0139750
990S-0139750
990S-0139750
990S-01406951
990S-01406951
990S-0141842
990S-0142972
990S-0144814
990S-0144814
990S-0144814
990S-0144834
990S-0147903
990S-0147903
990S-0147903
990S-0147903
990S-0147903
990S-0147903
990S-0147935

밁 Q Дb Ωy

```
RESULT 7
ABB92091
ID ABB
XX ABB
XX ABB
XX ABB
XXX Her
XX Her
XX Her
XX Ara
XX A
                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The invention relates to identifying target proteins (ABB90790-ABB94016) for harbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequences from plant with nucleic acid or amino acid sequences from non-plant organisms using suitable search parameters, where plant sequences having an E-value greater by a factor of 3 than the E-value of most similar non-plant sequences are selected. The polypeptides or nucleic acids encoding them are full for identifying modulators. The identified modulators are
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Identifying plant target proteins for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequences from plant with nucleic acid or amino acid sequences from non-plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 5; SEQ ID NO 1302;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 2002-269010/31.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Tietjen K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             07-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ABB92091;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ABB92091 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (FARB )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28-AUG-2001; 2001WO-EP09892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO200210210-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Arabidopsis thaliana.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Herbicidal; plant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Herbicidally active polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         31-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 28-AUG-2001; 2001WO-EP09892
                              116
                                                                          114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      235 GIFAYARKAGMIPSAAA 251
                                                                                                                           57
                                                                                                                                                                      61
                                                                                                                                                                                                                       \vdash
                                                                                                                                                                                                                                                             1 MAAALSGTAVSTAALLAPIRAPTSAFIRRSQLTCHRLHSLKCRRAGSIVPAAAAAAAGSS
                       SPSSA-----VFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MAASLOSANPTLSRTLASPNKPSSFATERSPEL--RENSTSV--ASNFKPLVSREASSSF 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GIFAYARKTGMIASKAA 248
                                                                                                                     VTRSAAEPQERKTFHGLCYVVGDNIDTDQIIPAEFLTLVPSNPEEYEKLGSYALVGLP-A
                                                                                                                                                                                                                                                                                                                 al Similarity 59.5
153; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                              as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BAYER AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                              herbicides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Weidler
                                                                                                                                                                                                                                                                                                                                                                                                                251 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       agriculture;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3
                                                                                                                                                                                                                                                                                                                                        56.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  261pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                                                 27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  251
                                                                                                                                                                                                                                                                                                              Score 710.5; DB 23; pred. No. 2.1e-63; 7; Mismatches 62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          herbicide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQ ID NO 1302.
                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                          Length 251;
                                                                                                                                                                                                                                                                                                                 15;
                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                        115
                                                                       173
                                                                                                                                                                    113
                                                                                                                                                                                                                                                                  60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  234
                                                                                                                                                                                                                                                                                                              6
RESULT 8

RACSULT 8

RACSULT 8

RACSULT 8

RACSULT 17

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                       14 - MAY - 1999

14 - MAY - 1999

18 - MAY - 1999

21 - MAY - 1999

21 - MAY - 1999

22 - MAY - 1999

25 - MAY - 1999

27 - MAY - 1999

28 - MAY - 1999

20 - JUN - 1999

04 - JUN - 1999

08 - JUN - 1999

07 - JUN - 1999

08 - JUN - 1999

08 - JUN - 1999

09 - JUN - 1999

09 - JUN - 1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19-APR-1999;
21-APR-1999;
23-APR-1999;
23-APR-1999;
28-APR-1999;
30-APR-1999;
30-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          25-FEB-1999
05-MAR-1999
09-MAR-1999
23-MAR-1999
25-MAR-1999
29-MAR-1999
01-APR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                06-MAY-1999;
07-MAY-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     04-MAY-1999;
05-MAY-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAG26402 standard; Protein; 261 AA
                                                                                                                                                                                                                                                                                                                                                                                                             14-MAY-
                                                                                                                                                                                                                                                                                                                                                                                                                                       14-MAY-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           11-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   06-MAY-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   08-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        06-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        25-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      06-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             17-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAG26402;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GIFAYARKAGMIPSAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GIFAYARKTGMIASKAA 248
                                                                                                                                                                                                                                                                                                                                                                                                                1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2000EP-0301439
990S-0134221

990S-0134768

990S-0134941

990S-0135124

990S-0135253

990S-013629

990S-0136392

990S-0136782

990S-0137782

990S-0137782

990S-0137724

990S-0137724

990S-0137724

990S-0137724

990S-0138647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99US-0132048.
99US-0132407.
99US-0132484.
99US-0132486.
99US-0132486.
99US-0132486.
                                                                                                                                                                                                                                                                                                                                                                                                        99US-0134256.
99US-0134218.
99US-0134219.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99US-0130077.
99US-0130449.
99US-0130510.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0123180.
99US-0123548.
99US-0125788.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99US-0130891
99US-0131449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99US-0126785
99US-0127462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-0129845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99US-0126264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-0121825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             251
```

QΥ DЬ δÃ В Ş

```
Qy
  174
```

Arabidopsis thaliana protein fragment SEQ ID NO: 30844.

Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter; termination sequence.

```
אק את את המים את ה
 Вр
                                QΥ
                                                                   Query Ma
Best Loc
Matches
                                                                                                                                      27-AUG-1999
27-AUG-1999
30-AUG-1999
31-AUG-1999
31-AUG-1999
31-AUG-1999
11-SEP-1999
11-SEP-1999
11-SEP-1999
12-SEP-1999
22-SEP-1999
23-SEP-1999
23-SEP-1999
24-SEP-1999
25-CCT-1999
14-CCT-1999
13-CCT-1999
14-CCT-1999
14-CCT-1999
14-CCT-1999
14-CCT-1999
14-CCT-1999
12-CCT-1999
13-CCT-1999
14-CCT-1999
14-CCT-1999
12-CCT-1999
14-CCT-1999
12-CCT-1999
13-CCT-1999
14-CCT-1999
14-CCT-1999
14-CCT-1999
14-CCT-1999
15-CCT-1999
16-CCT-1999
17-CCT-1999
18-CCT-1999
19-CCT-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11-AUG-1999
11-AUG-1999
13-AUG-1999
13-AUG-1999
11-AUG-1999
11-AUG-1999
11-AUG-1999
20-AUG-1999
20-AUG-1999
20-AUG-1999
23-AUG-1999
23-AUG-1999
25-AUG-1999
27-AUG-1999
27-AUG-1999
27-AUG-1999
27-AUG-1999
                                                                     y Match 56.1%;
Local Similarity 59.5%;
hes 153; Conservative
   11
                                    H
                                MAAALSGTAVSTAALLAPIRAPTSAFIRRSQLTCHRLHSLKCRRAGSIVPAAAAAAAGSS
MAASLQSANPTLSRTLASPNKPSSFATFRSPFL--RFNSTSV--ASNFKPLVSREASSSF
                                                                                                                                        99US-0148319.
99US-0148565.
99US-0148684.
99US-014976.
99US-014972.
99US-014972.
99US-014992.
99US-0151065.
99US-0151066.
99US-0151103.
99US-0155669.
99US-01566468.
99US-0158629.
99US-0158629.
99US-0158629.
99US-0158029.
99US-0159294.
99US-0159330.
99US-0159331.
99US-01595688.
99US-0159331.
99US-0159588.
99US-0159389.
99US-0160767.
99US-0160814.
99US-0161406.
99US-0161360.
99US-0161361.
99US-0161361.
99US-0161361.
99US-0161361.
99US-0161361.
                                                                   b; Score 710.5;
b; Pred. No. 2.2e
27; Mismatches
                                                                     ; DB 21;
2.2e-63;
hes 62;
                                                                            Indels
                                                                                                           Length
                                                                                                              261;
                                                                              15;
                                                                              Gaps
                                           60
          66
                                                                              6;
```

14-JUN-1999
16-JUN-1999
18-JUN-1999
18-JUN

990S-0139119
990S-0139452
990S-0139454
990S-0139456
990S-0139456
990S-0139466
990S-0139466
990S-0139466
990S-0139463
990S-0139463
990S-0140823
990S-0140823
990S-0140823
990S-0140823
990S-0140823
990S-0140823
990S-0140865
990S-0140865
990S-0140865
990S-0140865
990S-0140863
990S-0140863
990S-0140863
990S-0140863
990S-0145242
990S-0144334
990S-0144334
990S-0144334
990S-0144335
990S-0144334
990S-0147334
990S-0147336
990S-0147336
990S-0147336
990S-0147336
990S-0147336

밁 Š δõ 밁 Qy B δõ

```
RESULT 9
AAG42501
ID AAG42501
AAG42501
AAG42501
AAG42501
AAG42501
AAG42501
AAG4
AXX AAG4
AXX AAG4
AXX AFA
AXX 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Дb
   25-FEB-1999
05-MAR-1999
09-MAR-1999
23-MAR-1999
25-MAR-1999
26-MAR-1999
06-APR-1999
08-APR-1999
08-APR-1999
116-APR-1999
23-APR-1999
23-APR-1999
23-APR-1999
23-APR-1999
23-APR-1999
24-MAY-1999
14-MAY-1999
19-MAY-1999
19-MAY-1999
20-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter; termination sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       25-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      06-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EP1033405-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Arabidopsis thaliana protein fragment SEQ ID NO: 53013.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAG42501;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAG42501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GIFAYARKAGMIPSAAA 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GIFAYARKTGMIASKAA 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2000EP-0301439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
 990S-0121825

990S-0125788

990S-0125788

990S-0125785

990S-0127462

990S-01287462

990S-0128745

990S-0130475

990S-013047

990S-013049

990S-013149

990S-013149

990S-013149

990S-013286

990S-013286

990S-013286

990S-013286

990S-013286

990S-013287

990S-013286

990S-013287

990S-0134718

990S-0134718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      125
   27-MAY-1999;
28-MAY-1999;
01-UNN-1999;
01-UNN-1999;
10-UNN-1999;
11-UNN-1999;
11-UN
9908-0136392.
9908-0137728.
9908-0137728.
9908-0137722.
9908-01384094.
9908-0138847.
9908-0138847.
9908-0139452.
9908-0139452.
9908-0139453.
9908-0139457.
9908-0139457.
9908-0139461.
9908-0139461.
9908-0139461.
9908-0139461.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
9908-014962.
```

```
04-AUG-1999

04-AUG-1999

05-AUG-1999

06-AUG-1999

06-AUG-1999

06-AUG-1999

09-AUG-1999

10-AUG-1999

11-AUG-1999

13-AUG-1999

13-AUG-1999

13-AUG-1999

14-AUG-1999

17-AUG-1999

20-AUG-1999

20-AUG-1999

20-AUG-1999

20-AUG-1999

21-AUG-1999

21-AUG-1999

22-AUG-1999

23-AUG-1999

24-AUG-1999

25-AUG-1999

27-AUG-1999

27-AUG-1999

28-EUP-1999

19-EUP-1999

19-EUP-1999

19-EUP-1999

10-SEP-1999

10-SEP-1999

10-SEP-1999

11-SEP-1999

11-SE
                                                                                                                                                                                                                                                                                           13-OCT-1999;
13-OCT-1999;
13-OCT-1999;
14-OCT-1999;
14-OCT-1999;
14-OCT-1999;
14-OCT-1999;
14-OCT-1999;
                           21-OCT-1999
21-OCT-1999
21-OCT-1999
21-OCT-1999
21-OCT-1999
22-OCT-1999
22-OCT-1999
22-OCT-1999
22-OCT-1999
25-OCT-1999
25-OCT-1999
26-OCT-1999
26-OCT-1999
26-OCT-1999
26-OCT-1999
26-OCT-1999
                                                                                                                                                                                                                                                                                  -OCT
                                                                                                                                                                                                                                                                -OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          990S-0147204.
990S-0147192.
990S-0147260.
990S-0147260.
990S-0147416.
990S-0147413.
990S-0147433.
990S-0148131.
990S-0148134.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99US-0148565.
99US-0149368.
99US-0149175.
99US-0149722.
99US-0149723.
99US-0149902.
99US-0149902.
99US-0149902.
99US-0151065.
99US-0154039.
99US-0155139.
99US-0155486.
99US-015555.
99US-0156596.
99US-0156596.
99US-0158239.
99US-0158229.
99US-0158229.
99US-0159229.
99US-0159239.
99US-0159239.
99US-0159331.
99US-0159331.
99US-0159331.
99US-0159331.
99US-0160767.
99US-0160768.
99US-0160768.
99US-0160768.
99US-0160815.
99US-0160815.
99US-0160815.
99US-0160815.
99US-0160815.
99US-0161406.
99US-0161360.
99US-0161360.
99US-0161361.
99US-0161361.
99US-0161361.
99US-0161361.
99US-0161361.
99US-0161361.
99US-0161361.
```

```
RESULT 10
ABB92729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29-OCT-1999;
                             The invention relates to identifying target proteins (ABB90790-ABB94016) for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequences from plant with nucleic acid or amino acid sequences from non-plant organisms using suitable search parameters, where plant sequences having an E-value greater by a factor of 3 than the E-value of most similar non-plant sequences are selected. The polypeptides or nucleic acids encoding them are useful for identifying modulators. The identified modulators are
                                                                                                                                                               Identifying plant target proteins for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequences from plant with nucleic acid or amino acid sequences from non-plant
                                                                                                                                                                                                                                 Tietjen K,
                                                                                                                                                                                                                                                                             28-AUG-2001;
                                                                                                                                                                                                                                                                                                                       07-FEB-2002
                                                                                                                                                                                                                                                                                                                                             WO200210210-A2
                                                                                                                                                                                                                                                                                                                                                                 Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                       Herbicidal;
                                                                                                                                                                                                                                                                                                                                                                                                            Herbicidally active polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                 31-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ABB92729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ABB92729
                                                                                                                                                                                                                                                                                                 28-AUG-2001;
                                                                                                                                  Claim
                                                                                                                                                     organisms
                                                                                                                                                                                                                                                       (FARB ) BAYER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       126
                    useful
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MAAALSGTAVSTAALLAPIRAPTSAFIRRSQLTCHRLHSLKCRRAGSIVPAAAAAAAGSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MAASLQSANPTLSRTLASPNKPSSFATFRSPFL--RFNSTSV--ASNFKPLVSREASSSF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GIFAYARKTGMIASKAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SYKERFVQPGEMKTKYSIIIGGENFGCGSSREHAPVCLGAAGAKAVVAQSYARIFFRNSV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SPSSA-----VFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GIFAYARKAGMIPSAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGEVYPLD-SEVRVCDECTTGDVATVELREGDSILINHTTGKEYKLKPIGDAGPVIDAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGEVYPLELTDVGAWKECKTGDVVTVDL--ANSVFINHTSGKEYKLKPIGDAGPVIEAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                153;
                                                                                                                                                                                                             2002-269010/31.
                                                                                                                                  5
                       as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              standard;
                                                                                                                                   SEQ ID NO 1940;
                       herbicides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                  thaliana
                                                                                                                                                                                                                                  Weidler
                                                                                                                                                                                                                                                                                                                                                                                       plant; agriculture;
                                                                                                                                                                                                                                                                             2001WO-EP09892
                                                                                                                                                                                                                                                                                                  2001WO-EP09892
                                                                                                                                                                                                                                                                                                                                                                                                                                  (first
                                                                                                                                                                                                                                                        AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99US-0162142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                  entry)
                                                                                                                                                                                                                                  3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                56.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        248
                                                                                                                                  261pp +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 710.5; DB Pred. No. 2.2e-637; Mismatches 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AA
                                                                                                                                                                                                                                                                                                                                                                                                              SEQ
                                                                                                                                                                                                                                                                                                                                                                                         herbicide
                                                                                                                                   Sequence Listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                              ID NO 1940
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               261;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            185
                                                                                using
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6
```

Sequence

253 AA;

```
д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
Query Match 50.9%;
Best Local Similarity 57.9%;
Matches 139; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                     The invention relates to identifying target proteins (ABB90790-ABB94016) for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequences from plant with nucleic acid or amino acid sequences from non-plant organisms using suitable search parameters, where plant sequences having an E-value greater by a factor of 3 than the E-value of most similar non-plant sequences are selected. The polypeptides or nucleic acids encoding them are fully in the first identifying modulators. The identified modulators are
                                                                                                                                                                                                                                          Identifying plant target proteins for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequences from plant with nucleic acid or amino acid sequences from non-plant
                                                                                                                                                                                                      Claim 5; SEQ ID NO 1300; 261pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                                WPI; 2002-269010/31.
                                                                                                                                                                                                                                                                                                                       Tietjen
                                                                                                                                                                                                                                                                                                                                                                                                                              07-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                      WO200210210-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Herbicidally active polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ABB92089;
                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                (FARB )
                                                                                                                                                                                                                                                                                                                                                                           28-AUG-2001; 2001WO-EP09892
                                                                                                                                                                                                                                                                                                                                                                                                   28-AUG-2001; 2001WO-EP09892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Herbicidal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          31-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ABB92089 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ---ANSVFINHTSGKEYKLKPIGDAGPVIEAGGIFAYARKTGMIAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGEESSRYAIIVGGANFGCGS 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SAFIR-RSQLTCHRLHSLKCRRAGSIVPAAAAAAAGSSSPSSAVFHGECFVVGDNIDTDQ 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEDGSSLLINHTTRKEYKLKPLGDAGPVIDAGGIFAYARKAGMIPS 252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SREHAPVCLGAAGAKAVVAESYARIFFRNCVATGEIFPLE-SEVRICDECKTGDVVTIEH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVGAWKECKTGDVVTVDL 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SPFLQLKSASTIENYKPLTSSSATIITRVAASSSDSGESITRETFHGLCFVLKDNIDTDQ 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IIPAEYGTLIPSIPEDREKLGSFALNGLPK-FYNERFVVPGEMKSKYSVIIGGDNFGCGS
                                                                              as
                                                                                                                                                                                                                                                                                                                       .~
                                                                                                                                                                                                                                                                                                                                                  BAYER
                                                                          herbicides.
                                                                                                                                                                                                                                                                                                                         Weidler
                                                     256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       plant; agriculture;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                   ĄG
                                                     AA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                51.4%;
Score 644.5; DB Pred. No. le-56; 27; Mismatches 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       herbicide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                651;
No. 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ID NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 23;
.2e-57;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1300.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     56;
    59;
                        23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
  Indels
                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   245
                           256;
  15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4;
  6,
```

VΩ 밁 20

60

SSP-SSAVFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTP 118

Matches

136;

Conservative

38;

Indels

12;

Gaps

6,

4 ALSGTAVSTAALLAPIRAPTSAFIRRSQLTCHRLHSLKCRRAG----SIVPAAAAAAAGS

ALPCSSTKTSSSLATFRSP----FLRFNGSTSLIPSSISITSRGTSSPTIIPRAAASESDS

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
            Query Match
Best Local :
                                                                                       The invention relates to identifying target proteins (ABB90790-ABB94016) for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequences from plant with nucleic acid or amino acid sequences from non-plant organisms using suitable search parameters, where plant sequences having an E-value greater by a factor of 3 than the E-value of most similar non-plant sequences are selected. The polypeptides or nucleic acids encoding them are useful for identifying modulators. The identified modulators are
                                                                                                                                                                                                                                                  Identifying plant target proteins for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequence from plant with nucleic acid or amino acid sequences from non-plant
                                                                                                                                                                                                              Claim 5; SEQ ID NO 1301; 261pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                            07-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Herbicidally active polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            31-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ABB92090 standard;
                                                     Sequence
                                                                             useful as
                                                                                                                                                                                                                                                                                                          WPI; 2002-269010/31.
                                                                                                                                                                                                                                                                                                                                  Tietjen K,
                                                                                                                                                                                                                                                                                                                                                                                       28-AUG-2001; 2001WO-EP09892
                                                                                                                                                                                                                                                                                                                                                                                                                 28-AUG-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WO200210210-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Herbicidal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       АВВ92090;
                                                                                                                                                                                                                                                                                                                                                            (FARB )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SPSSA------VFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSA 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGEVYPLELTDVGAWKECKTGDVVTVDL--ANSVFINHTSGKEYKLKPIGDAGPVIEAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SYKERFVQPGEMKTKYSIIIGGENFGCGSSREHAPVCLGAAGAKAVVAQSYARIFFRNSV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AYPTPFVAPGEESSRYAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSV 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VTRSAAEPQERKTFHGLCYVVGDNIDTDQIIPAEFLTLVPSNPEEYEKLGSYALVGLP-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MAASLQSANPTLSRTLASPNKPSSFATFRSPFL--RFNSTSV--ASNFKPLVSREASSSF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MAAALSGTAVSTAALLAPIRAPTSAFIRRSQLTCHRLHSLKCRRAGSIVPAAAAAAAGSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATGEVYPLD-SEVRVCDECTTGDVATVELREGDSILINHTTGKEYKLKPIGDAGPVIDAG
                                                                                                                                                                                                                                                                                                                                                             BAYER
              Similarity
                                                                              herbicides.
                                                                                                                                                                                                                                                                                                                                   Weidler
                                                     256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        plant;
                                                                                                                                                                                                                                                                                                                                                                                                                 2001WO-EP09892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first
                                                                                                                                                                                                                                                                                                                                                             ΑG
                                                     ΑA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        agriculture;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            entry
            49.5%;
Score 627; DB
Pred. No. 5.9e
38; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  À
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         herbicide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ID NO
DB 23;
5.9e-55;
hes 65;
                         Length 256;
                                                                                                                                                                                                                                                                 sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60
```

```
Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
           S<sub>A</sub>
                                   В
                                                                                               Query Match
Best Local
                                                                                     Matches
                                                                                                                                                                   The invention relates to identifying target proteins (ABB90790-ABB94016) for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequences from plant with nucleic acid or amino acid sequences from non-plant organisms using suitable search parameters, where plant sequences having an E-value greater by a factor of 3 than the E-value of most similar non-plant sequences are selected. The polypeptides or nucleic acids encoding them are useful for identifying modulators. The identified modulators are
                                                                                                                                                                                                                                                                                                                 Identifying plant target proteins for herbicidally active compounds, comprising aligning and comparing nucleic acid or amino acid sequences from plant with nucleic acid or amino acid sequences from non-plant
                                                                                                                                                                                                                                                                                                                                                                                          Tietjen K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Arabidopsis thaliana
                                                                                                                                                                                                                                                                                Claim 5; SEQ ID NO 1303; 261pp + Sequence Listing; English
                                                                                                                                                                                                                                                                                                                                                                   WPI; 2002-269010/31.
                                                                                                                                                                                                                                                                                                                                                                                                                                          28-AUG-2001; 2001WO-EP09892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 28-AUG-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO200210210-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Herbicidal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Herbicidally active polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               31-MAY-2002 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ABB92092 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                 (FARB ) BAYER AG
                                                                                                                                                            useful as herbicides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
             60
                                    11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FPLE-SEVRYCEECKTGDTVTIELSDSGGLLTNHTTGKNYKLKSIGDAGPVIDAGGIFAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    YPLELTDVGAWKECKTGDVVTVDLANS--VFINHTSGKEYKLKPIGDAGPVIEAGGIFAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ARMMGMIPSLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ARKTGMIASKA
                                                  ALSGTAVSTAALLAPIRAPTSAFTRRSQLTCHRLHSLKCRRAG----SIVPAAAAAAAAGS 59
SSP-SSAVFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTP 118 : : : | :|| : : | :|| : : |
                                    ALPCSSTKTSSSLATFRSP---FLRFNGSTSLIPSSISITSRGTSSPTIIPRAAASESDS
                                                                                   Similarity 54.2
36; Conservative
                                                                                                                                   256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             plant; agriculture;
                                                                                                                                                                                                                                                                                                                                                                                          Weidler M;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2001WO-EP09892
                                                                                                                                   A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Protein; 256
                                                                                                49.5%;
                                                                                     38;
                                                                                                Score 627;
Pred. No. 5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 herbicide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQ ID NO 1303.
                                                                                      Mismatches
                                                                                                .9e
                                                                                                  55;
                                                                                      65;
                                                                                                             Length
                                                                                      Indels
                                                                                      12;
                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         186
                                        67
                                                                                       6
```

QΥ

129

YAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVGA 188

```
RESULT 14
AAB96359
ID AAB96
XX AAB96
XX AAB96
XX PUTA1
XX PUTA1
XX PYF0
XX PYF0
XX PYF0
XX PF27
XX 27-0
XX 27-0
XX 27-0
XX (CNR
PR 21-A
XX PF1 PF1
XX PF1
PF PF PF PF
XX PF1
PF PF PF
XX PF1
PF PF PF
XX PF1
XX PF1
PF PF
XX PF1
XX PF1
PF PF
XX PF1
X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QΨ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Дb
  밁
                                         QΥ
                                                                                            Matches
                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAB96359 standard;
                                                                                                                                                                                                                                                                                                                      The present invention relates to the genomic sequence of Pyrococcus abyssi (see AAF86431 and AAH41223-7) and P. abyssi proteins. P. abyssi a hyperthermophilic archaeon, which is isolated from deep-sea hydrothermal vents. The present sequence is one such P. abyssi protein. The proteins of the present invention have various potential industrial uses, since the proteins are stable at very high temperatures, some up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New nucleotide sequences isolated from proteins useful in industry – \ensuremath{\mathsf{proteins}}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hyperthermophilic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Putative 3-isopropylmalate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAB96359;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Claim 7; Page 1040; 1657pp; French.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 2001-126236/14.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Querellou J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FR2792651-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pyrococcus abyssi
                                                                                                                                                                                                                                   110 degrees centigrade.
Note: This patent is in the same
contains additional sequences as
AAH75903-AAH75920 and AAG66436.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Forterre P,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (CNRS ) CNRS CENT NAT RECH SCI.
(IFRE-) IFREMER INST FR RECH EX
                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        68 NEALANTTFHGLCYVLKDNIDTDQIIPAGAACTFPSNQQERDETAAHALSGLPD-FHKTR 126
                                                                                                                     Local
  տ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              YPLELTDYGAWKECKTGDYVTYDLANS--VFINHTSGKEYKLKPIGDAGPVIEAGGIFAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ARMMGMIPSLA 256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ARKTGMIASKA 247
GECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGEESSR
                                                                                                                  Similarity
                                                                                                                                                                                         164
                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Thierry JC, Prieur D, Weissenbach J, Saurin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99FR-0005034
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99FR-0005034
                                                                                                                                                                                       AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          archaeon;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Protein;
                                                                                                                     20.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      dehydratase/aconitase small subunit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    164
                                                                                                 26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          hyperthermophilic protein
                                                                                            Score 258.5; DB 22
Pred. No. 5.5e-18;
6; Mismatches 62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EXPL MER.
                                                                                                                                                                                                                                                              patent family as WO200065062, shown in AAB99132-AAB99143,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Dietrich J, W, Heilig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pyrococcus abyssi encode
                                                                                                                                             22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Lecompte
                                                                                                    Indels
                                                                                                                                                Length
                                                                                                                                                  164;
                                                                                                      17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                         which
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #2
                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            186
                                                        128
            53
                                                                                                                                                                                                                                                                                                                                                                                                                                    is
                                                                                                                                                                                                                                                                                                                                          ţ
                                                                                                         7;
```

84 B

--IIVAGENFGCGSSREHAPLAIKAAGVSCVIAKSFARIFYRNAINIG--LPI-LEAPQA 108

Job time : 38 secs

```
RESULT 15
AAB96132
ID AAB96132
XX AAB96132
XX AAB96
XX PUTCL
XX PUTCL
XX PYTCL
XX PYTCL
XX PYTCL
XX PYTCL
XX PYTCL
XX PYTCL
XX PTCL
XX PTCL
XX ITAL
XX
       밁
                                                           Qy
                                                                                                                                        В
                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                         Вþ
                                                                                                                                                                                                                                                                                                                                 ρ
                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 16.3%; Score 206.5; Best Local Similarity 34.1%; Pred. No. 9.9e Matches 60; Conservative 29; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The present invention relates to the genomic sequence of Pyrococcus abyssi (see AAF86431 and AAH4123-7) and P. abyssi proteins. P. abyssi is a hyperthermophilic archaeon, which is isolated from deep-sea hydrothermal vents. The present sequence is one such P. abyssi protein. The proteins of the present invention have various potential industrial uses, since the proteins are stable at very high temperatures, some up to Note: This patent is in the same patent family as WO200065062, which contains additional sequences as shown in AAB99132-AAB99143, AAH75903-AAH75920 and AAG66436.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim 7; Pages 768-769; 1657pp; French.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Forterre P, Thierry JC, Prieur D, Dietrich J, Querellou J, Weissenbach J, Saurin W, Heilig R;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAB96132 standard; Protein; 163 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  New nucleotide sequences isolated from Pyrococcus abyssi encode \operatorname{proteins} useful in industry -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 2001-126236/14.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FR2792651-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pyrococcus abyssi.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hyperthermophilic archaeon; hyperthermophilic protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Putative 3-isopropylmalate dehydratase/aconitase large subunit #2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29-OCT-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAB96132;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (CNRS ) CNRS CENT NAT RECH SCI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27-OCT-2000.
                                                                                                                                                                         127 SRYAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDV 186
       108
                                                                                                                                        50
                                                                                                                                                                                                                                                                                                                                            69 GECFVVGDNIDTDQIIPAEH-LTLVPSKPDEYRKLGSFAFAGL-PSAAYPTPFVAPGEES 126
                                                                                                                                                                                                                                                                             σ,
---DELEDGDVITVNWETGEV--RKNGQTLQFEPLPGFLLEIVREGGILEFIRRRG 158
                                                                      GAWKECKTGDVVTVDLANSVFINHTSGKEYKLKPI-GDAGPVIEAGGIFAYARKTG 241
                                                                                                                                                                                                                                                                         GRVWKFWDNVSTDEITPGRYNLTKDP-----QELARIAFIEVRPEFA------EKV 49
                                                                                                                                        RRGDVVVGGKNFGIGSSRESAALALKAAGVSGIIAKSFGRIFYRNAVNLG-~IPLLIGDT 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       163 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99FR-0005034.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99FR-0005034.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   .9e-13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 22; Length 163;
                                                                                                                                                                                                                                                                                                                                                                                                              62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Lecompte 0;
                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                              25;
                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                              8;
```

Search completed: March 31, 2003, 09:07:38

•					
•					
	•				
				÷	
		•			
			 •		

ï

ş

```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Minimum
Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Total number
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0p:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BG
         ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        •
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein search, using sw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Issued_Patents_AA:*

1: /cgn2_6/ptodata/1,

2: /cgn2_6/ptodata/1,

3: /cgn2_6/ptodata/1,

4: /cgn2_6/ptodata/1,

5: /cgn2_6/ptodata/1,

6: /cgn2_6/ptodata/1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-027-450-47
1266
1 MAAALSGTAVSTAALI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BLOSUM62
Gapop 10.0 , Gapext 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           March 31, 2003, 09:07:03; Search time 15 Seconds (without alignments) 488.421 Million cell updates/sec
         1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            262574 seqs, 29422922 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MAAALSGTAVSTAALLAPIR.....AGGIFAYARKTGMIASKAAA 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /cgn2_6/ptodata/1/iaa/5A_COMB.pep:*
/cgn2_6/ptodata/1/iaa/5B_COMB.pep:*
/cgn2_6/ptodata/1/iaa/6B_COMB.pep:*
/cgn2_6/ptodata/1/iaa/6B_COMB.pep:*
/cgn2_6/ptodata/1/iaa/B_COMB.pep:*
/cgn2_6/ptodata/1/iaa/backfiles1.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
         B
  US-09-173-300-47
US-09-173-300-53
US-09-173-300-51
US-09-173-300-51
US-09-173-300-51
US-09-134-001C-3886
US-09-134-001C-5208
US-09-135-115-7
US-08-804-227C-8
US-08-804-227C-3
US-09-131-814-46
US-09-413-814-46
US-09-413-814-46
US-09-413-814-15
US-09-413-814-15
US-09-413-814-15
US-09-413-814-15
US-09-413-814-15
US-09-413-814-15
US-09-413-64-1
US-09-134-001C-3882
US-08-678-039A-40
US-08-678-039A-40
US-08-557-139-2
US-08-804-227C-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    model
Sequence 47, Appl
Sequence 51, Appl
Sequence 49, Appli
Sequence 41, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 3886, App
Sequence 3, Appli
Sequence 3, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 3, Appli
Sequence 15, Appl
Sequence 2, Appli
Sequence 3, Appli
Sequence 2, Appli
Sequence 3, Appli
Sequence 3, Appli
Sequence 2, Appli
Sequence 3, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-0
                                                                                                   δõ
                                                                                                                                                     B
                                                                                                                                                                                 δõ
                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                       δδ
DP
                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                          뫄
      RESULT 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ¥ & 0
```

1 MAAALGGTAVSTAALLAPIRAPTSAFIRRSOLTCHRLHSLKCRRAGSIVPAAAAAA	300-47  100.0%; Score 1266; DB 4; Length 24  11 Similarity 100.0%; Pred. No. 4.3e-138;  249; Conservative 0; Mismatches 0; Indels		ALIGNMENTS	28 77.5 6.1 4545 2 US-08-804-227C-14 Segun 29 76.5 6.0 430 2 US-08-809-740A-2 Segun 30 76 6.0 387 4 US-09-23-427-4 Segun 31 76 6.0 387 4 US-09-23-427-4 Segun 31 76 6.0 387 4 US-09-912-642-4 Segun 32 76 6.0 970 1 US-08-375-709-7 Segun 34 76 6.0 970 1 US-08-752-929-7 Segun 34 76 6.0 1261 1 US-08-764-100-26 Segun 35 76 6.0 1261 1 US-08-764-100-26 Segun 36 75.5 6.0 1298 4 US-09-004-888-108 Segun 37 75.5 6.0 1298 2 US-08-690-473-2 Segun 39 75.5 6.0 1298 4 US-09-259-821A-2 Segun 39 75.5 6.0 1298 4 US-08-650-328-2 Segun 40 75.5 5.9 3165 2 US-08-459-146-3 Segun 42 75 5.9 3165 2 US-08-459-146-3 Segun 45 75 5.9 3165 2 US-08-459-146-3 Segun 45 75 5.9 11877 4 US-09-105-537-6 Segun 5-69-105-537-6 Segun 5-6
SIYPAAAAAAGSS 60	0; Gaps	ETIC ENZYMES		Sequence 14, Appli Sequence 4, Appli Sequence 4, Appli Sequence 7, Appli Sequence 7, Appli Sequence 7, Appli Sequence 26, Appli Sequence 26, Appli Sequence 2, Appli Sequence 2, Appli Sequence 2, Appli Sequence 3, Appli Sequence 3, Appli Sequence 3, Appli Sequence 3, Appli Sequence 3, Appli Sequence 6, Appli
	0;	•		

Sequence 53, Applica Patent No. 6451581 GENERAL INFORMATION:

Application US/09173300

```
; SEQ ID NO 49
; LENGTH: 257
; TYPE: PRT
; ORGANISM: Oryza s
US-09-173-300-49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQ ID NOS: 54
SOFTWARE: Microsoft Word Version 7.0A
SEQ ID NO 53
LENGTH: 244
TYPE: PRT
DRGANISM: Triticum aestivum
US-09-173-300-53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           몂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qγ
                                                                                                                                                                                                                                                                                                                                                                                                      US-09-173-300-49
                                                                                                                                                                                                                         GENERAL INFORMATION:
APPLICANT: Falco, Saverio Carl
APPLICANT: Hitz, William D.
APPLICANT: Kinney, Anthony J.
APPLICANT: Cahoon, Rebecca E.
APPLICANT: Rafalski, J. Antoni
TITLE OF INVENTION: PLANT BRANCHED CHAIN AMINO ACID BIOSYNTHETIC
FILE REFERENCE: BB-1126
FILE REFERENCE: BB-1126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 240; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Falco, Saverio Carl
APPLICANT: Hitz, William D.
APPLICANT: Kinney, Anthony J.
APPLICANT: Kinney, Anthony J.
APPLICANT: Cahoon, Rebecca E.
APPLICANT: Rafalski, J. Antoni
TITLE OF INVENTION: PLANT BRANCHED CHAIN AMINO ACID BIOSYNTHETIC
FILE REFERENCE: BB-1126
FILE REFERENCE: BB-1126
CURRENT APPLICATION NUMBER: US/09/173,300
CURRENT FILING DATE: 1998-10-15
EARLIER APPLICATION NUMBER: 60/063,423
EARLIER APPLICATION DATE: 1997 October 28
EARLIER FILING DATE: 1997 October 28
                                                                                                                                                                                                                                                                                                                                                                   Sequence 49, Application US/09173300 Patent No. 6451581
Query Match
                                                                                                                    CURRENT APPLICATION NUMBER: US/09/173,300 CURRENT FILING DATE: 1998-10-15 EARLIER APPLICATION NUMBER: 60/063,423 EARLIER FILING DATE: 1997 October 28 NUMBER OF SEQ ID NOS: 54 SOFTWARE: Microsoft Word Version 7.0A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           244 A 244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AVSTAALLAPIRAPTSAFIRRSQLTCHRLHSLKCRRAGSIVPAAAAAAAGSSSPSSAVFH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AVSTAALLAPIRAPTSAFIRRSQLTCHRLHSLKCRRAGSIVPAAAAAAAAGSSSPSSÄVFH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 YAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVGTGEVYPLELTDVGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVGA 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                     sativa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          96.8%;
   78.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 1226; DB 4;
Pred. No. 1.8e-133;
0; Mismatches 1;
   Score
   994.5;
   DВ
   4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 244;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ENZYMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                    ENZYMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
```

```
APPLICANT: Falco, Saverio Carl
APPLICANT: Hitz, William D.
APPLICANT: Kinney, Anthony J.
APPLICANT: Cahoon, Rebecca E.
APPLICANT: Cahoon, Rebecca E.
APPLICANT: Rafalski, J. Antoni
TITLE OF INVENTION: PLANT BRANCHED CHAIN AMINO ACID BIOSYNTHETIC EN
FILE REFERENCE: B8-1126
CURRENT APPLICATION NUMBER: US/09/173,300
CURRENT FILING DATE: 1998-10-15
CURRENT FILING DATE: 1997 October 28
NUMBER OF SEQ ID NOS: 54
SOFTMARE: Microsoft Word Version 7.0A
SEQ ID NO 51
LENGTH: 263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 4
US-09-173-300-51
                                                                                                                                                                                                                                                                                                       ; NAME/KEY: UNSURE
; LOCATION: (4)
US-09-173-300-51
           Š
                                     В
                                                             QΥ
                                                                                          밁
                                                                                                               VΩ
                                                                                                                                            В
                                                                                                                                                                   QΥ
                                                                                                                                                                                              밁
                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 51, Application US/09173300 Patent No. 6451581 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity Matches 198; Conserva
                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 157; Conserva
                                                                                                                                                                                                                                                                                                                                             ORGANISM: Glycine FEATURE:
                                                                                                                                                                                                                                                                                                                                                                        TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  237
                                                                 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 MAAAAAAAPALSLAEAAPVTAVLAPCPTPSRTFRRRSWVAAICRPALKCHHSRPLTAVVAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MAAALSGTAVSTA-----ALLAPIRAPTSAFIRRSQLTCHRLHSLKC---RRAGSIVPA
                                                                                                                                               77
                                                                                                                                                                                              20 TRFSSAATVLP---RNLAFTKLSLSHSHTLLPRFLSFPTPKSSNPRNRVAVSLQTPRAQS
                                                                                                                                                                                                                         8 TAVSTAALLAPIRAPTSAFIRRSQLTCHRL------HSLKCRRAGSIVPAAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TAAYPTPFVAPGEETTRYAVIIGGANFGCGSSREHAPVALGAAGARAVVAEGYARIFFRN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GIFAYARKTGMIASKAA 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TPFVAPGEESSRYAIIVGGANFGCGSSSREHAPVALGAAGARAIVAEGYARIFFRNSVATG
                                                                                                                                                            AGSSSDSSAVFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYP 116
ARKTGMIASK 246
                                                                                                                                              AASASP-SASFHGLCYVVGDNIDTDQIIPAEYLTLVPSKPDEYEKLGSYALIGLP-ATYA
                                       EVYPLE-SEGRLCEECTTGDVVTIELGESRLINHTTGKEYRLKPIGDAGPVIEAGGIFAY
                                                              EVYPLELTDVGAWKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGDAGPVIEAGGIFAY 236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       77.0%;
                                                                                                                                                                                                                                                                 58.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18;
                                                                                                                                                                                                                                                     24; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No. 1.1e-106;
.8; Mismatches 32;
                                                                                                                                                                                                                                                              Score 740.5; DB 4
Pred. No. 2.5e-77;
                                                                                                                                                                                                                                                                               DB 4;
                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                  263;
                                                                                                                                                                                                                                                        17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ENZYMES
                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       51
                                                                                                                         176
                                                                                                                                                   134
                                                                                                                                                                                                     76
                                                                                                                                                                                                                              56
                                            253
                                                                                                194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2;
                                                                                                                                                                                                                                                          5
```

밁

254 ARKTGMIPSR 263

5,

```
RESULT 6
US-09-134-001C-3886
                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                              Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                      δδ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08-403-866-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-403-866-4
GENERAL INFORMATION:
APPLICANT: Lynn Doucette-Stamm et al
APPLICANT: Lynn Doucette-Stamm et al
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO STAPHYLOCOCCUS
TITLE OF INVENTION: EPIDERMIDIS FOR DIAGNOSTICS AND THERAPEUTICS
                                                                                                Sequence 3886, Application US/09134001C Patent No. 6380370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 4, Application US/08403866 Patent No. 5643779
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX: (716) 263-1487
TELEX: 978450 (WUT)
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 191 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/403,866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Ehrlich, Stanislav
APPLICANT: Godon, Jean-Jacques
APPLICANT: Renault, Pierre
TITLE OF INVENTION: Nucleic acid coding for an alpha-acetolactate
TITLE OF INVENTION: synthase from Lactococcus and its applications
NUMBER OF SEQUENCES: 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE/DOCKET NUMBER: 20
TELECOMMUNICATION INFORMATION:
TELEPHONE: (716) 263-1600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MOLECULE TYPE: protein HYPOTHETICAL: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
                                                                                                                                                                                                                                     170 LDDIGITLQYEEAISAYEQK 189
                                                                                                                                                                                                                                                                             222 -GDAGPVIE-AGGIFAYARK 239
                                                                                                                                                                                                                                                                                                                         116 LLPIKQPREVLNQLTKLSSQEE-----ITIDLPHQLIITSLGDFHFEIDPIWKDKLING 169
                                                                                                                                                                                                                                                                                                                                                                 178 VYPL-----ELTDVGAWKECKTGDVVTVDLANSVFINHTSGKEYKLKPI------
                                                                                                                                                                                                                                                                                                                                                                                                                                     118 PFVAPGEESSRYAIIVGGANFGCGSSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGE 177
                                                                                                                                                                                                                                                                                                                                                                                                              57 DFILNAPKYKKASILISGDNFGSGSSREHAAWALSDYGFRAIIAGSYSDIFYNNALKNG- 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          58 GSSSPSSAVFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPT 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
nes 58; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME: Goldman, Michael L. REGISTRATION NUMBER: 30,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INDIVIDUAL ISOLATE: LEUD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTSVP-----VMNDNIDTDQIIPKQFLKAIDKK--GFGKNLFYEWRYLKDYDENP 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ٤4,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Lactococcus lactis subsp. lactis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15.1%; Score 191.5; DB 1; 29.0%; Pred. No. 4.3e-14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20747/30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 191;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                    221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7;
```

```
; MOLECULE TYPE: US-08-887-798-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; ORGANISM: Staphylococcus epidermidis US-09-134-001C-3886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-887-798-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 2, Application Patent No. 5922556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION NUMBER: US 60/055,779
PRIOR FILING DATE: 1997-08-14
NUMBER OF SEQ ID NOS: 5674
SEQ ID NO 3886
LENGTH: 189
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                          TELEFAX: 212-391-0525
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                 ATTORNEY/AGENT INFORMATION:
NAME: White, John P.
REGISTRATION UNMBER: 28.678
REFERENCE/DOCKET NUMBER: 0575
TELECOMMUNICATION INFORMATION:
TELEPHONE: 212-278-0400
TELEFAX: 212-391-0525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION NUMBER: US/09/134,001C CURRENT EILING DATE: 1998-08-13 PRIOR APPLICATION NUMBER: US 60/064,964 PRIOR FILING DATE: 1997-11-08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                STREET: LICE
STREET: New York
STATE: New York
STATE: U.S.A.
                                                                                                                                                                                                                                                                                                                             SOFTWARE: PatentIn Release #1.0, Version CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Graziano, Joseph H.
APPLICANT: Freyer, Greg
TITLE OF INVENTION: PARKINSON'S DISEASE TESTS
NUMBER OF SEQUENCES: 38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Mayeux, Richard APPLICANT: Graziano, Joseph
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             133 VGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVGAWKE- 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        76 DNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAF --- AGLPSAAYPTPFVAPGEESSRYAII 132
                                        TOPOLOGY:
                                                                                                                                                                                                                                                                      CLASSIFICATION:
                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY: U
ZIP: 10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19 DNIDTDQIIPKVHLKRVSKS-----GFGPFAFDEWRYLPDGSDNPDFNPNKPEYHGASIL 73
                                                                           LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -- CKTGDVVTVDLAN 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EHLAQFDEITVDLPN 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ITGDNFGCGSSREHAAWALKDYGFNIIIAGSFSDIFYMNCTKNA-MLPICLNQ----KER 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 Similarity
52; Conserv
                                                       amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Application US/08887798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     E: Cooper & Dunham LLP
1185 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         13.1%; Score 166; DI 38.5%; Pred. No. 3.76 tive 11; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Joseph H.
                                                                                                                                                                                                                                                                                                           us/08/887,798
                                                                                                                  2:
                                                                                                                                                                                            0575/51949/JPW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.7e-11;
                                                                                                                                                                                                                                                                                                                                                  #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             56;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
```

Query Match Best Local Similarity

9.1%; 23.3%;

Score 115.5; DB 2 Pred. No. 0.00022;

DB 2;

Length 780;

120

12;

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; NUMBER OF SEQ ID NOS: 5674
; SEQ ID NO 5208
; LENGTH: 914
; TYPE: PRT
; ORGANISM: Staphylococcus epidermidis
US-09-134-001C-5208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ДĎ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-134-001C-5208
                                                                                                                                                                                                                                                                                                                                                                                 ρ
                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                  US-09-355-115-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:

APPLICANT: Lynn Doucette-Stamm et al
APPLICANT: Lynn Doucette-Stamm et al
TITLE OF INVENTION: NUCLEIC ACID AMINO ACID SEQUENCES RELATING TO STAPHYLOCOCCUS
TITLE OF INVENTION: EPIDERMIDIS FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: GTC-007
CURRENT APPLICATION NUMBER: US/09/134,001C
CURRENT FILING DATE: 1998-08-13
PRIOR APPLICATION NUMBER: US 60/064,964
PRIOR FILING DATE: 1997-11-08
PRIOR APPLICATION NUMBER: US 60/055,779
PRIOR FILING DATE: 1997-08-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                       Sequence 7, Application US/09355115
Patent No. 6200788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
CURRENT APPLICATION NUMBER: US/09/355,115
CURRENT FILING DATE: 1999-07-23
EARLIER APPLICATION NUMBER: PCT/JP98/00194
EARLIER FILING DATE: 1998-01-20
EARLIER APPLICATION NUMBER: JP 9-011430
                                                                                                  APPLICANT: FERRI, Stefano R.
APPLICANT: TOGURI, TOSANANICA
TITLE OF INVENTION: BETA-KETOACYL-ACP SYNTHETASE II ENZYMES AND GENES
TITLE OF INVENTION: CODING FOR SAME
FILE REFERENCE: 049441/0121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                656 RWYVIGDENYGEGSSREHAALEPRHLGGRAIITKSFARIHETNLKKQG-LLPLTFADPAD 714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     131 --IIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVGA 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               611 DNISNNLLIGA--INIENGKANSVRNAVTQEFGPVP-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       715 YNKIHPVDKLTIQGLKDFTPGKPLKCIIKHPNGTQETILLNHT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 691 GDSVTTDHISPAGAIGKDTPAGKYLLDHDVAIRNFNSYGSRRGNHEVMVRGTFANIRIKN 750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   76
                                                                                                                                                                                                                                                                                                                                                869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      751 QLAPGTEGGFTTYWPTGEIMPIYDAAMKYKEDGTGLVVLAGNDYGMGSSRDWAAKGTNLL 810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
les 45; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WKECKTGDVVTVD----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGEESSRYA----- 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GDNIDTDQIIPA-----EHLTLVPS-----KPDEYRKLGSFAFAGLPS 112
                                                                                                                                                                                                                                                                                                                                                VNVTAKKE 876
                                                                                                                                                                                                                                                                                                                                                                                   INHTSGKE 215
                                                                                                                                                                                                                                                                                                                                                                                                                           GVKTVIAQSYERIHRSNLVMMG-VLPLQFQQ-GESAEALGLDGKEEISVDINEDVQPHDL 868
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GARAIVAEGYARIFFRNSVATGEVYPLELTDVGAWKECKTGD---VVTVDLANSV----F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAYP----TPFVAPGE-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5208, Application US/09134001C
5. 6380370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7.8%;
23.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 98.5; DB 4; Pred. No. 0.026;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----LANSVFINHT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----ESSRYAIIVGGANFGCGSSREHAPVALGAA 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              56;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     69;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 914;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels 49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   --DTARYYKKHGI 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>ن</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-355-115-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 10
US-08-858-207A-388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EARLIER FILING DATE: 1997-01-24
NUMBER OF SEQ ID NOS: 11
SOFTWARE: PATENTIN Ver. 2.0
SEQ ID NO 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 388, Application US/08858207A Patent No. 6348328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH: 461
TYPE: PRT
ORGANISM: Barley
                                                                                                                                                                                                        SOFTWARE: FASTSEQ for Windows Version CURRENT APPLICATION DATA: APPLICATION NUMBER: US/08/858,207A FILING DATE: 09-MAY-1997 CLASSIFICATION: 435 PRIOR APPLICATION UNDER: 60,007670 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: NO NUMBER OF SEQUENCES: 5 CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Nicholas, Richard
APPLICANT: Stodola, Robert
TITLE OF INVENTION: No. 6348328el Compounds
NUMBER OF SEQUENCES: 552
                                                      REGISTRATION NUMBER: 38,891
REFERENCE/DOCKET NUMBER: P5
TELECOMMUNICATION INFORMATION:
TELEPHONE: 610-270-4478
                                                                                                                               APPLICATION NUMBER: 60/0:
FILING DATE: 14-MAY-1996
ATTORNEY/AGENT INFORMATION:
NAME: Gimmi Edward R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121 APG-----EESSRYAIIVG-----GANFGCGSSREHAPVALGAA------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    222 AAANHIRRGEADIIVAGGTEAAIIPIGLGG 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13 AALLAPIRAPTSAFIRRSQLTCHRLHSLKCRRAGSIVPAAAAAAAGSSSPSSAVF---HG 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       57 LASVFGSDVDTFYDRLLAGES-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE: SmithKline Beecham Corporation STREET: 709 Swedeland Road CITY: King of Prussia
                                                                                                                                                                                                                                                                                                                               COMPUTER: IBM CON OPERATING SYSTEM:
                                 TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                      STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DLANSV----FINHTSGKEYKLKPIGDAG 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SVFSDGVQNLIEKGYRKISPFFIPYAITNMGSALLAIDVGFMGPNYSISTACATSNYCFY 221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----GARAIVAEGYARI--FFRNSVATGEVYPLELTDVGAW------KECKTGDVVTV 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEGYIDGKNDRRLDDCIRYCILSGKKALESAGLGAGSD-AHVKLDVGRAGVLVGTGMGGL 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ECTVVGDNIDT--DQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAHALGLRVPPPAFPRR-----RARPRRRPAAAVLATSAAPQRETDPRKRVVITGMG 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61;
                                                                                                                                                                                                                                                                                                                                                                                                                19406-0939
                                                                                                                                                                                                                                                                                                                                                                                                                                                      PΑ
                                   610-270-5090
                                                                                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hodgson, John
Knowles, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Black, Michael
                                                                                                                                                                                                                                                                                                                                                    IBM Compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7.0%; Score 88; D
22.6%; Pred. No. 0
                                                                                                                                                                                              60/017670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28;
                                                                                           P50475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----GVGPIDRFDASSFPTRFAGQIRGFS 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 4; Length 461;
0.15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; 08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
```

```
;; TYPE: amino acid; STRANDEDNESS: Single; TOPOLOGY: linear; MOLECULE TYPE: NO. 6348328e US-08-858-207A-388
                        Ş
                                                                    밁
                                                                                                              Qy
                                                                                                                                                                                                                                                    ; TOPOLOGY: unknown
; MOLECULE TYPE: peptide
US-08-804-227C-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 11
US-08-804-227C-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
Matches 31
                                                                                                                                                          Query Match 6.8%; Score 85.5; DB 2; Best Local Similarity 23.8%; Pred. No. 9.6; Matches 64; Conservative 27; Mismatches 91;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 8, Application US/08804227C Patent No. 5876991
                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER: IBM COMPATIBLE
COMPUTER: IBM COMPATIBLE
OPERATING SYSTEM: MS-DOS
SOSTWARE: ASCICOS) Text only
CURRENT APPLICATION DATA:
APPLICATION UNMBER: US/08/804,227C
FILLING DATE: February 21, 1997
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Plant, Thomas, G
REGISTRATION UNMBER: 35,784
REFERENCE/DOCKET NUMBER: X-8231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:

APPLICANT: DeHOff, Bradley S.

APPLICANT: Kinstoss, Stuart A.

APPLICANT: ROSteck, Paul R., Jr.

APPLICANT: Sutton, Kimberly L.

TITLE OF INVENTION: POLIXETIDE SYNTHASE GENES

NUMBER OF SEQUENCES: 15
                                                                                                                                                                                                                                                                                                                                                                                    TELECOMMUNICATION INFORMATION:
TELEPHONE: 317-276-2459
INFORMATION FOR SEQ ID NO: 8:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   INFORMATION FOR SEQ ID NO: 3
SEQUENCE CHARACTERISTICS:
LENGTH: 119 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CORRESPONDENCE ADDRESS:
ADDRESSEE: THOMAS G. PLANT 1501
STREET: LILLY CORPORATE CENTER
                                                                                                                                                                                                                                                                                                               SEQUENCE CHARACTERISTICS:
LENGTH: 4550 amino acids
TYPE: amino acid
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM Compatible
OPERATING SYSTEM: MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              141 GSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGE---VYPLELTDVGAWKECKTGDV 197
                                                               273 REGQEAVLRAACAQARVDPAEVRFVELHGTGTPVGDPVEAHALGAVHGSGRPADDPLLVG 332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           198 VTVDLANSVFIN------HTSGKEYKLKPIGDAGPVIEAGGIFAYARK 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CITY: INDIANAPOLIS
STATE: IN
COUNTRY: USA
61 VTVDLEQQKIISPVEEFTFEIDSKWKHKLLNSLDDIGITLQYEELIAAYEK 111
                                                                                                              44 RAGSIVPAAAAAAAGSSSPSSAVF---HGECFVVGDNIDTDQI-----IPAEHLTLVP 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ZIP: 46285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6.9%; Score 87; DB 4; Length 119; Local Similarity 27.9%; Pred. No. 0.025; es 31; Conservative 16; Mismatches 50; Indels 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3 GSSRDHAAWALADYGFKVVIAGSFGDIHYNNELNNGMLPIVQPREVREKLA--QLKPTDQ 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         388:
                                                                                                                                                       91;
                                                                                                                                                                                                      Length 4550;
                                                                                                                                                            Indels 87;
                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                            13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ω,
```

	446	Db 393 LAPGGAPLLAGVSSFGIGGTNCHVVLEHLPSRPTPAVSVAASLPDVPPLLLSAR	
	159	Τ	~
	392	Db 333 SVKTNIGHLEGAAGIAGLVKAALCLRERTLPGSLNFATPSPAIPLDQLRLKVQTAAAELP	_
	120	Qy 94 SKPDEYRKL-GSFAFAGLPSAAYPTPFVPTPFV	^
	93 332	Qy 44 RAGSIVPAAAAAAGSSSPSSAVFHGECFVVGDNIDTDQIIPAEHLTLVP	
13;	Gaps	Query Match 6.8%; Score 85.5; DB 2; Length 4550; Best Local Similarity 23.8%; Pred. No. 9.6; Matches 64; Conservative 27; Mismatches 91; Indels 87; Ga	
•		STREET: LILLY CORPORATE CENTER CITY: INJANAPOLIS STATE: IN STATE: IN COUNTRY: USA ZIP: 46285 COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk COMPUTER: MACIATOSh OPERATING SYSTEM: MACIATOSh OPERATING SYSTEM: MACIATOSh COMPUTER: MACIATOSh T.0 SOFTWARE: MICTOSOFT WORD 5.1 CURRENT APPLICATION DATA: APPLICATION NUMBER: US/08/804,198 FILING DATE: CLASSIFICATION: 435 ATTORNEY/AGRENT INFORMATION: REFERENCE/DOCKET NUMBER: 99113 TELEPHONE: 317-276-3885 INFORMATION FOR SEQ ID NO: 2: SEQUENCE CHARACTERISTICS: LENGTH: 4550 amino acids TYPE: amino acids	
		APPLICANT: Rao, Nagaraja R APPLICANT: Richardson, Mar APPLICANT: Rosteck, Paul R TITLE OF INVENTION: PLATEN NUMBER OF SEQUENCES: 6 CORRESPONDENCE ADDRESS: ADDRESSEE: LILLY CORPORATE STREET: LILLY CORPORATE	
		XESULT 12 IS-08-804-198-2 Sequence 2, Ap Patent NO. 594 GENERAL INFOR APPLICANT: APPLICANT:	
		Qy 220 PIGDAGPVIEAGGIFAYARKTGMIASKAA 248 	
	219 489	Qy 160 VABGYARIFFRNSVATGEVYPLELTDVGAWKECKTGDVVTVDLANSVFINHTSGKEYKLK	п о
	159 446	Qy 121 -APGEESSRYAIIVGGANFGCGSSREHAPVALGAAGARAI	
	392	Db 333 SVKTNIGHLEGAAGIAGLVKAALCLRERTLPGSLNFATPSPAIPLDQLRLKVQTAAAELP	_

```
멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 13
US-08-791-115B-5
                                                                                                                                       Ş
                                                                                                                                                                          밁
                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY: US-08-791-115B-5
                                 RESULT 14
US-09-413-814-46
                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 5, Applic Patent No. 6262242
Sequence 46, Appli
Patent No. 6225064
                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: TAVTIGIAN, SEAN V.
TITLE OF INVENTION: A TUMOR SUPPRESSOR DESIGNATED TS10Q23.3
NUMBER OF SEQUENCES: 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME: Ihnen, Jeffrey L.
REGISTION NUMBER: 38,957
REFERENCE/DOCKET NUMBER: 23
TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-683-6040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: PatentIn Release #1.0, Version CURRENT APPLICATION DATA:
APPLICATION UNBER: US/08/791,115B
FILING DATE: 30-JAN-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    447 -SEGALR---AQAVRLGEY----VERVGADPR-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 220 PIGDAGPVIEAGGIFAYARKTGMIASKAA 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   160 VAEGYARIFFRNSVATGEVYPLELTDVGAWKECKTGDVVTVDLANSVFINHTSGKEYKLK 219
                                                                                                                                         132 IVGGANFGCGSSREHAPVALGAAGARAIVAE 162
                                                                                                                                                                                                                                                151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY: U
ZIP: 22204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE:
                                                                                                                                                                                                             73
                                                                                                                                                                                                                                                                                                                                                                                                                         STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PCGGRGELVAALGGFAAGRVSGGVRSGRA 518
                                                                                                                                                                                                           VVGDNIDTDQIIPAEHLTLVPSKPDEYRKL-GSFAFAGLPSAAYPTPFVAPGEESSRYAI 131
                                                                                                                                                                                                                                              REPAEARRRR-----RRHLPLLERGGEAAAAAAAAAAAPGRGSESPVTISRAGNAGEL- 203
                                                                                                                                                                                                                                                                               RAPTSAFIRRSQLTCHRLHSLKCRRAGSIVPAAAAAAA----GSSSP---SSAVFHGECF 72
                                                                                                        --GGSRSEDYSSSPHS----AAAAARPLAAE 271
                                                                                                                                                                                                                                                                                                                    49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                        amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Application US/08791115B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               E: Rothwell, Figg, Ernst & Kurz, P. 555 Thirteenth Street, N.W., Suite
                  Application US/09413814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pershouse, Mark A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            742 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Yung, W.K. Alfred
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Jasser, Samar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             202-683-7031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Steck, Peter
                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                            -VSPLLLPPTRRRRRRHIQGPGPVLNLPSAAAAPP-VARAPEAAG---
                                                                                                                                                                                                                                                                                                                                   6.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <u>ب</u>
                                                                                                                                                                                                                                                                                                                      8;
                                                                                                                                                                                                                                                                                                                                   Score 83;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2318-134.A
                                                                                                                                                                                                                                                                                                                      ed. No. 1.2;
Mismatches
                                                                                                                                                                                                                                                                                                                                                       DB 4; Length 742;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #
                                                                                                                                                                                                                                                                                                                        56; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -DVAYSLASTRTLFEHRAVV 489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            . 30
                                                                                                                                                                                                                                                                                                                          38;
                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                          8
```

```
Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-413-814-46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 15
US-08-317-310A-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
APPLICANT: Gesellschaft fuer Biotechnologische Forschung mbH
APPLICANT: Bristol-Myers Squibb, Co.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQ ID NO 46
                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 15, Appl Patent No. 585870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity Matches 51; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: DNA sequences for enzymatic synthesis of polyketide TITLE OF INVENTION: heteropolyketide compounds FILE REFERENCE: PCT/US 99/23535
CURRENT APPLICATION NUMBER: US/09/413,814
CURRENT FILING DATE: 1998-10-07
EARLIER APPLICATION NUMBER: DE 198 46 493.2
EARLIER FILING DATE: 1998-10-09
NUMBER OF SEQ ID NOS: 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Brandt, Petra
APPLICANT: Cino, Paul M
APPLICANT: Dougherty, Brian A
APPLICANT: Goldberg, Steven L
APPLICANT: Hofle, Gerhard
                                                     COUNTAL.
ZIP: 02109
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
MEDIUM TYPE: BM PC compatible
TWOMPHER: THE PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Bloecker,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
APPLICANT: WHITE, MOTTIS F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: PRT
ORGANISM: Sorangium cellulosum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH: 1544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1152 IALHAVDEAGPTRLALRGLHAWVPQCEHVQPATIPGAGMWREGGVY-MITGG--FG---- 1204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1097 VTPAALALGDEATRPEWAILHG--MVAGLSRDYPE---WRFVSIDGGDPSPHRCEGLARL 1151
                                                                                                                                                                                                                                                                                                   APPLICANT: WHITE, MORRIS F.
APPLICANT: SUM, Xiao Jian
APPLICANT: PIERCE, Jacalyn H.
TITLE OF INVENTION: THE IRS F
NUMBER OF SEQUENCES: 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1254 EAMRRYFDAAHARFGAIDGILHAAG----
                 OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: ASCII text
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/317,310A
                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               48 IVPAAAAAAGSSSPSSAVFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLG---- 103
FILING DATE:
                                                                                                                                                                                                   STATE: Massachusetts
                                                                                                                                                                                                                        CITY: Boston
                                                                                                                                                                                                                                            STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVGAWKE---CKTGDVVTV 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DLANSVF - - -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----GIGLALARALAREARAKL-----ILVGRNLPTAPIDLEAWDAPPLILTADVADE 1253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PatentIn Ver.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Reichenbach, Hans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mueller, Joachim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Beyer, Stefan
                                                                                                                                                                                                                                                                                                                                                                                                                                               Application US/08317310A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                              28 State Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     --SFAFAGL----PSAAYPTPFVAPG----EESSRYAIIVGGANFGCGSS 143
  03-OCT-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Helmut
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6.4%; Score 81; DB 22.5%; Pred. No. 6.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INHTSGKEYKLKPIGDAGPVIEAGGIFA 235
                                                                                                                                                                                                                                                                                                                               IRS FAMILY OF GENES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 4; Length 1544;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    76;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <sub>12</sub>;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       or
```

```
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: LOUIS MYSTER
REGISTRATION NUMBER: 35,965
REFERENCE/DOCKET NUMBER: JDP-022
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617)227-7400
TELEFAX: (617)227-7400
TELEFAX: (617)227-740
INFORMATION FOR SEQ ID NO: 15:
SEQUENCE CHARACTERISTICS:
LENGTH: 1234 amino acids
TYPE: amino acid
TYPE: amino acid
TYPE: Jength 1: 10-21
MOLECULE TYPE: peptide
FRAGMENT TYPE: internal
US-08-317-310A-15
Search completed: March 31, 2003, 09:10:04 Job time : 18 \sec s
                                                                                                       밁
                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                    Qγ
                                                                                                                                                                                                                                                                                                       ₽
                                                                                                                                                                                                                                                                                                                                                                                              Query Match 6.4%; Score 80.5; DB 2; Length 1234; Best Local Similarity 24.8%; Pred. No. 5; Matches 38; Conservative 15; Mismatches 45; Indels 55
                                                                                                       1148 GD------LGGV-----SKESAPVC-GAAG 1165
                                                                                                                                                                                                      1124 GGG------GGSEDVKR-----H-----
                                                                                                                                                                                                                                                                                                     1064 GMSAFTRVNLSPNHNQSAKVIRADTQGCRRRHSSETFSAPTRAGNTVPFGAGAAVGGSGG 1123
                                                                                                                                  123 GEESSRYAIIVGGANFGCGSSREHAPVALGAAG 155
                                                                                                                                                                                                                                              63 SSAVFHGECEVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAP 122
                                                                                                                                                                                                                                                                                                                                7 GTAVSTAALLAPIRAPTSAFIRRSQLTCHRLHSLKC----RRAGSIVPAAAAAAAGSSSSP 62
                                                                                                                                                                                                                                                                                                                                                                                                      45; Indels 55; Gaps
                                                                                                                                                                                                      ----SSASFENVWLRP 1147
                                                                                                                                                                                                                                                                                                                                                                                                      7;
```

	A. G. J.	
-		
٠		
		•

į

```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Minimum
Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      on:
                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
        1266
1226
994.5
740.5
184
1164.5
155.5
155.5
155.5
155.5
155.5
155.5
155.5
155.5
155.5
155.5
155.5
155.5
155.5
                                                                                                                                                                                                                                                                                                             Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                           Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                   March 31, 2003, 09:08:58; Search time 15 Seconds (without alignments) 974.813 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-027-450-47
1266
1 MAAALSGTAVSTAALLAPIR.....AGGIFAYARKTGMIASKAAA 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                237916 seqs, 58723674 residues
         78.6
58.5
114.5
112.3
112.3
112.3
112.1
110.6
8.8
8.8
8.8
8.8
8.3
8.3
                                                                                                                                                                                                                                                                                                                                                                                                                                            .: //ggn2_6/ptodata/2/pubpaa/US08_NEW_PUB.pep:*
.: //ggn2_6/ptodata/2/pubpaa/US08_NEW_PUB.pep:*
.: //ggn2_6/ptodata/2/pubpaa/US06_NEW_PUB.pep:*
.: //ggn2_6/ptodata/2/pubpaa/US06_PUBCOMB.pep:*
.: //ggn2_6/ptodata/2/pubpaa/US07_NEW_PUB.pep:*
.: //ggn2_6/ptodata/2/pubpaa/US07_NEW_PUB.pep:*
.: //ggn2_6/ptodata/2/pubpaa/US08_PUBCOMB.pep:*
.: //ggn2_6/ptodata/2/pubpaa/US08_PUBCOMB.pep:*
.: //ggn2_6/ptodata/2/pubpaa/US09_NEW_PUB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Published_Applications_AA: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                               Length
        В
         12 US-10-027-450-47
12 US-10-027-450-53
12 US-10-027-450-59
12 US-10-027-450-51
10 US-09-815-242-1190
10 US-09-815-242-14016
10 US-09-815-242-14016
10 US-09-815-242-11050
10 US-09-815-242-11050
10 US-09-815-242-111650
10 US-09-738-626-4953
10 US-09-738-626-4953
10 US-09-738-626-5199
10 US-09-738-626-5199
10 US-09-738-626-5199
10 US-09-738-626-711648
10 US-09-738-738-700
10 US-09-738-738-700
10 US-09-739-307-12
10 US-09-779-307-12
10 US-09-779-307-13
                                                                                                                                                                                                                                                                                                               Ħ
                                                                                                                                                                                                                                                                                                                                                           SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    237916
Sequence 47, Appl
Sequence 53, Appl
Sequence 51, Appl
Sequence 510, Appl
Sequence 5100, Appl
Sequence 11016, A
Sequence 11217, A
Sequence 10207, A
Sequence 4953, Ap
Sequence 4953, Ap
Sequence 5199, Ap
Sequence 5199, Ap
Sequence 71648, A
Sequence 700, App
Sequence 71, Appl
Sequence 11, Appl
Sequence 11, Appl
Sequence 11, Appl
Sequence 13, Appl
                                                                                                                                                                                                                                                                                                             Description
```

45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20
77.5	77.5	77.5	77.5	77.5	77.5	77.5	77.5	77.5	78	79	79	80	80.5	81	81	81	82.5	83	84	84.5	88.5	88.5	90	93	94.5
6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.2	6.2	6.2	6.3	6.4	6.4	6.4	6.4	6.5	6.6	6.6	6.7	7.0	7.0	7.1	7.3	7.5
1242	1242	1242	1242	1242	1242	470	460	398	354	430	345	351	567	562	562	442	1056	537	354	324	585	341	44	952	1051
10	10	10	10	10	9	9	9	9	10	9	10	10	9	10	10	10	9	9	10	9	9	9	10	9	9
US-09-903-199-5	US-09-903-216-5	US-09-903-063-5	US-09-859-604-5	US-09-903-248-5	US-09-436-184-5	US-09-976-673-18	US-09-976-673-16	US-09-738-626-6532	US-09-999-162-14	US-10-029-180-32	US-09-789-836-5	US-09-815-242-11984	US-09-344-882-30	US-09-815-242-12929	US-09-815-242-12159	US-09-749-728B-11	US-10-161-510-10	US-09-738-626-4284	US-09-825-414-70	US-09-738-626-4887	US-09-738-626-6032	US-09-738-626-4543	US-09-864-761-42633	US-09-924-396B-18	US-09-976-059-13
Sequence 5, Appli	Sequence 18, Appl	Sequence 16, Appl	Sequence 6532, Ap	Sequence 14, Appl	Sequence 32, Appl	Sequence 5, Appli	Sequence 11984, A	Sequence 30, Appl	Sequence 12929, A	Sequence 12159, A	Sequence 11, Appl	Sequence 10, Appl	4,	Sequence 70, Appl	Sequence 4887, Ap	Sequence 6032, Ap	Sequence 4543, Ap	m	Sequence 18, Appl	Sequence 13, Appl					

## ALIGNMENTS

RESULT 1 US-10-027-450-47

Sequence 47, Application US/10027450 Patent No. US20020102715A1

```
GENERAL INFORMATION:

GENERAL INFORMATION:

APPLICANT: Falco, Saverio Carl

APPLICANT: Kinney, Anthony J.

APPLICANT: Kinney, Anthony J.

APPLICANT: Cahoon, Rebecca E.

APPLICANT: Cahoon, Rebecca E.

APPLICANT: Rafalski, J. Antoni

TITLE OF INVENTION: PLANT BRANCHED CHAIN AMINO ACID BIOSYNTHETIC ENZ

FILE REFERENCE: BB-1126

CURRENT APPLICATION NUMBER: US/10/027,450

CURRENT APPLICATION NUMBER: US/10/027,450

CURRENT FILING DATE: 2001-12-20

PRIOR APPLICATION NUMBER: 60/063,423

PRIOR FILING DATE: 1997 October 28

NUMBER OF SEQ ID NOS: 54

SOFTWARE: Microsoft Word Version 7.0A

SEQ ID NO 47

LENGTH: 249

TYPE: PRT

GRANISM: Zea mays

US-10-027-450-47
                                                                     밁
                                                                                                            δÃ
                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                         Дβ
                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                          Query Match 100.0%; Score 1266; DB 12; Best Local Similarity 100.0%; Pred. No. 1.2e-113; Matches 249; Conservative 0; Mismatches 0;
181 LELTDVGAWKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGDAGPVIEAGGIFAYARKT
                                                                       121
                                                                                                                    121
                                                                                                                                                                  61
                                                                                                                                                                                      61 SPSSAVFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFV 120
                                                                                                                                                                                                                                                                               1 MAAALSGTAVSTAALLAPIRAPTSAFIRRSQLTCHRLHSLKCRRAGSIVPAAAAAAAGSS
                                                                                                                                                                                                                                                         1 MAAALSGTAVSTAALLAPIRAPTSAFIRRSQLTCHRLHSLKCRRAGSIVPAAAAAAAGSS
                                                                  APGEESSRYAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYP 180
                                                                                                                                                              SPSSAVFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFV
                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                            Length 249;
                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                               Gaps
                        240
                                                                                                                                                                120
                                                                                                                                                                                                                                                           60
                                                                                                                                                                                                                                                                                                                                                  0
```

B

181

LELTDVGAWKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGDAGPVIEAGGIFAYARKT 240

```
RESULT 3

US-10-027-49

VS-10-027-49

Sequence 49, Application US/10027450

Patent No. US20020102715A1

GENERAL INFORMATION:
APPLICANT: Hitz, William D.
APPLICANT: Kinney, Anthony J.
APPLICANT: Cahoon, Rebecca E.
APPLICANT: Rafalski, J. Antoni
TITLE OF INVENTION: PLANT BRANCHED CHAIN AMINO ACID BIOSYNTHETIC ENGURERET EFFERNCE: BB-1126

CURRENT FILLING DATE: 2001-12-20

PRIOR APPLICATION NUMBER: US/10/027,450

PRIOR APPLICATION NUMBER: 60/063,423

PRIOR FILLING DATE: 1997 October 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; TYPE: PRT; ORGANISM: Triticum aestivum US-10-027-450-53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-027-450-53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION NUMBER: 60/063,423
PRIOR FILING DATE: 1997 October 28
NUMBER OF SEQ ID NOS: 54
SOFTWARE: Microsoft Word Version 7.0A
SEQ ID NO 53
LENGTH: 244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 53, Application US/10027450 Patent No. US20020102715A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches 240;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: PLANT BRANCHED CHAIN AMINO ACID BIOSYNTHETIC FILE REFERENCE: BB-1126 CURRENT APPLICATION NUMBER: US/10/027,450 CURRENT FILING DATE: 2001-12-20 CURRENT FILING DATE: 2001-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Kinney, Anthony J. APPLICANT: Cahoon, Rebecca E. APPLICANT: Rafalski, J. Antoni
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Falco, Saverio Carl APPLICANT: Hitz, William D.
NUMBER OF SEQ ID NOS: 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        244 A 244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9 AVSTAALLAPIRAPTSAFIRRSQLTCHRLHSLKCRRAGSIVPAAAAAAAAAGSSSPSSAVFH 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGDAGPVIEAGGIFAYARKTGMIASKAA 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   YAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVGTGEVYPLELTDVGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGDAGPVIEAGGIFAYARKTGMIASKAA 243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVGA 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGEESSR 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AVSTAALLAPIRAPTSAFIRRSQLTCHRLHSLKCRRAGSIVPAAAAAAAAGSSSPSSAVFH 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GMIASKAAA 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GMIASKAAA 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          96.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 1226; DB 12;
Pred. No. 7.9e-110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 244;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ENZYMES
                                                                                                                                                                                                                                   ENZYMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
```

```
CURRENT APPLICATION NUMBER: US/10/027,450
CURRENT FILING DATE: 2001-12-20
PRIOR APPLICATION NUMBER: 60/63,423
PRIOR FILING DATE: 1997 October 28
NUMBER OF SEQ ID NOS: 54
SOFTWARE: Microsoft Word Version 7.0A
SEQ ID NO 51
LENGTH: 263
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; LENGTH: 257
; TYPE: PRT
; ORGANISM: Oryza :
US-10-027-450-49
                                              Дb
                                                                          Qy
                                                                                                          뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QY
              δã
                                                                                                                                        Qy
                                                                                                                                                                                                                                       ; NAME/KEY: UNSURE
; LOCATION: (4)
US-10-027-450-51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-027-450-51
                                                                                                                                                                           Query Match
Best Local S
Matches 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: Microsoft Word Version 7.0A SEQ ID NO 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 51, Application US/10027450 Patent No. US20020102715A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity
Matches 198; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Falco, Saverio Carl
APPLICANT: Hitz, William D.
APPLICANT: Kinney, Anthony J.
APPLICANT: Cahoon, Rebecca E.
APPLICANT: Rafalski, J. Antoni
                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE OF INVENTION: PLANT BRANCHED CHAIN AMINO ACID BIOSYNTHETIC FILE REFERENCE: BB-1126
                                                                                                                                                                                                                                                                                       ORGANISM: Glycine max FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         117 TPFVAPGEESSRYAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 172 SVATGEVYPLELTDVGAWKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGDAGPVIEAG 231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               232 GIFAYARKTGMIASKAA 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181 SVATGEVYPLELADTGAWKECKTGDVVTVELDNCVMINHTSGKQYKLKPIGDAGPVIEAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 AAAAAAAGDSTSAGVFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFVGLP 120
                                                                                                             20 TRFSSAATVLP---RNLAFTKLSLSHSHTLLPRFLSFPTPKSSNPRNRVAVSLQTPRAQS 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MAAALSGTAVSTA-----ALLAPIRAPTSAFIRRSQLTCHRLHSLKC---RRAGSIVPA 51
                                                                                                                                          8 TAVSTAALLAPIRAPTSAFIRRSQLTCHRL------HSLKCRRAGSIVPAAAAAA 56
                                              AGSSSPSSAVFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYP 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INFORMATION:
                                                                                                                                                                           al Similarity
157; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sativa
                                                                                                                                                                                        58.5%; Score 740.5; DB 1 62.8%; Pred. No. 2.8e-63;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   78.6%; Score 994.5; DB 1 77.0%; Pred. No. 1.3e-87;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18;
                                                                                                                                                                         24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 12;
                                                                                                                                                                                                       DB 12; Length 263;
                                                                                                                                                                           52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     32;
                                                                                                                                                                         Indels 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     257;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9;
                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ENZYMES
                  176
                                                134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                             ū
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2:
```

밁 Q 밁 Qγ

254

195 177 135

```
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR FILING DATE: 2000-12-22
PRIOR APPLICATION NUMBER: 60/269,308
PRIOR FILING DATE: 2001-02-16
NUMBER OF SEQ ID NOS: 14110
SOFTWARE: BASTSEQ for Windows Version 4.
SEQ ID NO 11900
LENGTH: 212
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Yamamoto, Robert T.
APPLICANT: Xu, H. Howard
TITLE OF INVENTION: Identification of Essential Genes in
TITLE OF INVENTION: Prokaryotes
FILE REFERENCE: ELITRA, 011A
CURRENT APPLICATION UNMBER: US/09/815,242
CURRENT FILING DATE: 2001-03-21
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR FILING DATE: 2000-05-23
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR FILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: 60/242,578
PRIOR APPLICATION NUMBER: 60/243,578
PRIOR APPLICATION NUMBER: 60/253,625
RESULT 6
US-09-615-242-5730
; Sequence 5730, Application
; Patent No. US20020061569A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; ORGANISM: Pseudomonas aeruginosa US-09-815-242-11900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-815-242-11900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity 32.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Haselbeck, Robert
APPLICANT: Ohlsen, Kari L.
APPLICANT: Zyskind, Judith W.
APPLICANT: Wall, Daniel
APPLICANT: Trawick, John D.
APPLICANT: Carr, Grant J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 11900, Application Patent No. US20020061569A1
                                                                                                                                                                                         123 NG-LLPIILPEAEVDELFRQVEANEGYQLSIDLAAQT-VTRPDGK 165
                                                                                                                                                                                                                                                                                              63 LNPDFVLNQPRYQGASVLLARENFGCGSSREHAPWALDEYGFRTVIAPSYADIFFNNSFK 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                   77 NIDTDQIIPAEHLTLV-----PSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGEESS--- 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7 ARKTGMIASK 246
||||||| |:
4 ARKTGMIPSR 263
                                                                                                                                                                                                                                        TGEVYPL-----ELTDVGAWKECKTGDVVTVDLANSVFINHTSGK 214
                                                                                                                                                                                                                                                                                                                                             -----RY---AIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVA 174
                                                                                                                                                                                                                                                                                                                                                                                                NVDTDQIIPKQFLKSIKRTGFGPNLFDEWRYL-------DVGQPGQDNSKRP 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EVYPLE-SEGRLCEECTTGDVVTIELGESRLINHTTGKEYRLKPIGDAGPVIEAGGIFAY 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EVYPLELTDVGAWKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGDAGPVIEAGGIFAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TRFIEPGEIKTKYAIVIGGANFGCGSSREHAPVALGASGAAAVVAESYARIFFRNSVATG 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ohlsen, Kari L.
Zyskind, Judith W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Application US/09815242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               14.5%; Score 184; DB 10; 32.1%; Pred. No. 4.2e-10; tive 23; Mismatches 45;
                                                          US/09815242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels 44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE OF INVENTION: Identification of Essential Gen
TITLE OF INVENTION: Prokatyotes
FILE REFERENCE: ELITRA.011A
CURRENT APPLICATION NUMBER: US/09/815,242
CURRENT FILING DATE: 2001-03-21
PRIOR APPLICATION NUMBER: 60/210,78
PRIOR FILING DATE: 2000-03-21
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR PILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: 60/242,578
PRIOR APPLICATION NUMBER: 60/242,578
PRIOR FILING DATE: 2000-10-23
PRIOR APPLICATION NUMBER: 60/253,625
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR APPLICATION NUMBER: 60/269,308
PRIOR FILING DATE: 2001-02-16
PRIOR PILING DATE: 2001-02-16
NUMBER OF SEO ID NOS: 14110
SOFTWARE: FASTSEQ FOR Windows Version 4.0
LENGTH: 644
                                                                                                                                                                                                                                                                                                                          RESULT 7
US-09-815-242-14016
; Sequence 14016, Application US/09815242
; Patent No. USZ0020061569A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; NAME/KEY: VARIANT
; LOCATION: (1)...(644)
; OTHER INFORMATION: Xaa = Any Amino Acid
US-09-815-242-5730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                          APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                APPLICANT: Haselbeck, Robert APPLICANT: Ohlsen, Kari L. APPLICANT: Zyskind, Judith W
                                                  TITLE OF INVENTION: Identification TITLE OF INVENTION: Prokaryotes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Haselbeck, APPLICANT: Ohlsen, K
     CURRENT APPLICATION NUMBER: US/09/815,242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM: Staphylococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               133 VGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRN 171
: | ||||||||| || | | |:| :: ||: |
532 ITGDNFGCGSSREHAAWALKDYGFHIIIAGSFSDIFYMN 570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            427 KGARTHLVSPAMAAAAA------IHGK-FVDVRKVVVXMAAIKPITTYKGKIVPLFN 476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         76 DNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAF---AGLPSAAYPTPFVAPGEESSRYAII 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            41 KCRRAGSIVPAAAAAAAGSSSPSSAVFHGECFV------VG 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Match 13.0%;
Local Similarity 33.3%;
                              REFERENCE: ELITRA.011A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DNIDTDQIIPKVHLKRISKS-----GFGPFAFDEWRYLPDGSDNPDFNPNKPQYKGASIL 531
                                                                                                                                                                                                            Ohlsen, Kari L.
Zyskind, Judith W
Wall, Daniel
                                                                                                          Carr, Grant J.
Yamamoto, Robert T.
Xu, H. Howard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Zyskind, Judith Wall, Daniel Trawick, John D.
                                                                                                                                                                                      Trawick, John D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Xu, H. Howard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Carr, Grant J.
Yamamoto, Robert T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ohlsen, Kari L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Judith W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 164.5; 1
Pred. No. 1.4e
12; Mismatches
                                                                                    of Essential Genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .4e-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 10; Length 644;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
```

Qy В Qy В δÃ

```
PRIOR APPLICATION NUMBER: 60/242,578
PRIOR FILING DATE: 2000-10-23
PRIOR FILING DATE: 2000-11-27
PRIOR FILING DATE: 2000-11-27
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR FILING DATE: 2000-12-22
PRIOR APPLICATION NUMBER: 60/269,308
PRIOR FILING DATE: 2001-02-16
NUMBER: 65EQ ID NOS: 14110
SOFTWARE: FASTSEQ for Windows Version 4.
SEQ ID NO 14016
LENGTH: 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-815-242-12157

; Sequence 12157, Application US/09815242

; Patent No. US20020061569A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S<sub>A</sub>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; ORGANISM: Salmonella
US-09-815-242-14016
                                      PRIOR APPLICATION NUMBER: 60/191,078
PRIOR FILING DATE: 2000-03-21
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR TILING DATE: 2000-05-26
PRIOR FILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR APPLICATION NUMBER: 60/242,578
PRIOR APPLICATION NUMBER: 60/253,625
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR FILING DATE: 2000-11-27
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR APPLICATION NUMBER: 60/257,931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR FILING DATE: 2000-03-21
PRIOR APPLICATION UNMER: 60/206,848
PRIOR FILING DATE: 2000-05-23
PRIOR APPLICATION UNMER: 60/207,727
PRIOR FILING DATE: 2000-05-26
PRIOR FILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: 60/269,308 PRIOR FILING DATE: 2001-02-16
                                                                                                                                                                                                                                                                                                                                                            CURRENT APPLICATION NUMBER: US/09/815,242
CURRENT FILING DATE: 2001-03-21
                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION: Identification TITLE OF INVENTION: Prokaryotes FILE REFERENCE: ELITRA.011A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Haselbeck, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT FILING DATE: 2001-03-21
PRIOR APPLICATION NUMBER: 60/191,078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           104 PSFADIFYGNSF-NNQLLPVKLSD 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          162 EGYARIFFRNSVATGEVYPLELTD 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            103 GSFAFAGLPSAAYPTP-FVAPGEESSRYAIIVGGANFGCGSSREHAPVALGAAGARAIVA 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity nes 45; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           45 NDWRFLD-EKGQQPNPEFVLNFPEYQGASILLARENFGCGSSREHAPWALTDYGFKVVIA 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           43 RRAGSIVPAAAAAAAGSSSPSSAVFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKL 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QHTGLVVPLDAA------44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Carr, Grant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Xu, H. Howard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Trawick, John D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Zyskind, Judith W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ohlsen, Kari
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Yamamoto,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Robert T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            typhi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 155.5; DB 10; Length 201;
Pred. No. 2.1e-07;
8; Mismatches 56; Indels 25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 of Essential Genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4;
```

```
APPLICANT: XU, H. HOWARD
TITLE OF INVENTION: Identification of Essential Genes in
TITLE OF INVENTION: Prokafyotes
FILE REFERENCE: ELITRA.011A
CURRENT FILING DATE: 2001-03-21
PRIOR APPLICATION NUMBER: 05/29/815,242
CURRENT FILING DATE: 2000-03-21
PRIOR APPLICATION NUMBER: 60/210,078
PRIOR FILING DATE: 2000-05-23
PRIOR FILING DATE: 2000-05-26
PRIOR FILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: 60/242,578
PRIOR APPLICATION NUMBER: 60/242,578
PRIOR APPLICATION NUMBER: 60/253,625
PRIOR FILING DATE: 2000-11-23
PRIOR FILING DATE: 2000-11-27
PRIOR FILING DATE: 2000-11-27
PRIOR FILING DATE: 2000-12-26
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR APPLICATION NUMBER: 60/269,308
PRIOR APPLICATION NUMBER: 60/269,308
PRIOR APPLICATION NUMBER: 60/269,308
PRIOR FILING DATE: 2001-10-16
                                          Д
                                                                                  δõ
                                                                                                                               Дb
                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                         ; ORGANISM: Escherichia
US-09-815-242-10020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; TYPE: PRT; ORGANISM: Staphylococcus aureus US-09-815-242-12157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 9
US-09-815-242-10020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: FastSEQ for Windows Version
SEQ ID NO 12157
LENGTH: 190
                                                                                                                                                                                                                                                                                                                                                                           SEQ ID NO 10020
LENGTH: 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
                                                                                                                                                                                                                                         Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 10020, Application US/09815242 Patent No. US20020061569A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQ ID NOS: 14110
SOFTWARE: FastSEQ for Windows Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Haselbeck, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
162
                                                                                  103 GSFAFAGLPSAAYPTP-FVAPGEESSRYAIIVGGANFGCGSSREHAPVALGAAGARAIVA 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 133 VGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRN 171
                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity hes 40; Conserv
                                        45 NDWRFLD-EKGQQPNPDFVLNFPQYQGASILLARENFGCGSSREHAPWALTDYGFKVVIA 103
                                                                                                                                                                         43 RRAGSIVPAAAAAAAGSSSPSSAVFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKL 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20 DNIDTDQIIPKVHLKRISKS-----GFGPFAFDEWRYLPDGSDNPDFNPNKPQYKGASIL 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   76 DNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAF---AGLPSAAYPTPFVAPGEESSRYAII 132
                                                                                                                               EGYARIFFRNSVATGEVYPLELTD 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ITGDNFGCGSSREHAAWALKDYGFHIIIAGSFSDIFYMN 11:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ohlsen, Kari L.
Zyskind, Judith W.
Wall, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Trawick, John D. Carr, Grant J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Yamamoto, Robert T.
                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12.2%;
                                                                                                                                                                                                                 12.1%; Score 153.5; DB 10; 30.6%; Pred. No. 3.3e-07; tive 19; Mismatches 56;
                                                                                                                                                                                                                                                                                                                                   coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; Score 155; DB 10;
; Pred. No. 2.2e-07;
10; Mismatches 41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 190;
                                                                                                                                                                                                                                                              Length 201;
                                                                                                                                                                                                                      25;
                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                        4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'n
```

В

```
US-09-738-626-4953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; ORGANISM: Haemophilus influenzae US-09-815-242-11165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-815-242-11165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: Prokaryotes
FILE REFERENCE: ELITER.011A
CURRENT APPLICATION UNMBER: US/09/815,242
CURRENT FILING DATE: 2001-03-21
PRIOR APPLICATION NUMBER: 60/191,078
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR FILING DATE: 2000-05-26
PRIOR FILING DATE: 2000-05-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION NUMBER: 60/242,578
PRIOR FILING DATE: 2000-10-23
PRIOR APPLICATION NUMBER: 60/253,625
PRIOR FILING DATE: 2000-11-27
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR FILING DATE: 2000-12-22
PRIOR APPLICATION NUMBER: 60/269,308
                                                                                                                                                                 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 11165
LENGTH: 200
TYPE: PRT
                                                                                                                                                                                     Sequence 4953, Application US/09738626 Publication No. US20020197605A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 11165, Application US/09815242 Patent No. US20020061569A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
APPLICANT:
                                            APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
APPLICANT:
                                                                                                                  APPLICANT: NAKAGAWA, SATOSHI APPLICANT: MIZOGUCHI, HIROSI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR FILING DATE: 2001-02-16
NUMBER OF SEQ ID NOS: 14110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION: Identification of Essential Genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Ohlsen, Kari
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Haselbeck, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           104 PSFADIFYGNSF-NNQLLPVKLSD 126
                                                                                                                                                                                                                                                                                                                                                                     158 AIVAEGYARIFFRNSVATGEVYPL----ELTDVGAWKECKTGDVVTVDL 202
                                                                                                                                                                                                                                                                                                                                                                                                                                             99 YRKLGSFAFAGLPSAAYPTP-FVAPGEESSRYAIIVGGANFGCGSSREHAPVALGAAGAR 157 : | | | | | | | | | | | | | :
                                                                                                                                                                                                                                                                                                                           99 VMIAPSFADIFYNNSL-NNHMLPIRLSEEEVEEIFQWVWANEGKQIHVDL 147
                                                                                                                                                                                                                                                                                                                                                                                                                     46 WRYLD-----VEGTKPNPEFVLNYPQYQGATILLARKNLGCGSSREHAPWALADYGFK 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        45 AGSIVPAAAAAAAGSSSPSSAVFHGECFVVGDNIDTDQIIPAEHLTLVPSKP-----DE 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Match 11.9%; Score 151; DB 10; cocal Similarity 28.2%; Pred. No. 5.6e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Xu, H. Howard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Zyskind, Judith W. Wall, Daniel
  TATEISHI, NAOKO
                                          HAYASHI, MIKIRO
OCHIAI, KEIKO
                                                                                              ANDO,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Carr, Grant J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Trawick, John D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Yamamoto, Robert T.
                           YOKOI, HARUHIKO
                                                                                              SEIKO
                                                                                                               HIROSHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        59;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 200;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels 42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6
                                                                                                                                 APPLICANT: IALLUMAN, ASSITO
APPLICANT: IKEDA, MASATO
APPLICANT: IKEDA, MASATO
APPLICANT: OZAKI, AKIO
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-125
CURRENT APPLICATION NUMBER: US/09/738,626
CURRENT FILING DATE: 2000-12-18
PRIOR APPLICATION NUMBER: JP 99/377484
PRIOR FILING DATE: 1999-12-16
PRIOR APPLICATION NUMBER: JP 00/159162
PRIOR APPLICATION NUMBER: JP 00/280988
PRIOR APPLICATION NUMBER: JP 00/280988
PRIOR APPLICATION NUMBER: JP 00/280988
PRIOR FILING DATE: 2000-08-03
NUMBER OF SEQ ID NOS: 7059
SEQ ID NO 5199
TENGTH: 943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION NUMBER: US/09/738,626
CURRENT FILING DATE: 2000-12-18
PRIOR APPLICATION NUMBER: JP 99/377484
PRIOR FILING DATE: 1999-12-16
PRIOR APPLICATION NUMBER: JP 00/159162
PRIOR FILING DATE: 2000-04-07
PRIOR APPLICATION NUMBER: JP 00/280988
PRIOR FILING DATE: 2000-08-03
NUMBER OF SEQ ID NOS: 7059
SOFTWARE: Patentin ver. 3.0
SEQ ID NO 4953
LENGTH: 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; TYPE: PRT ; ORGANISM: Corynebacterium glutamicum US-09-738-626-4953
                                                                   ; ORGANISM: Corynebacterium glutamicum US-09-738-626-5199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 12
US-09-738-626-5199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 5199, Application US/09738626 Publication No. US20020197605A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: NAKAGAWA, SATOSHI
APPLICANT: MIZOGUCHI, HIROSI
APPLICANT: ANDO, SEIKO
APPLICANT: HAYASHI, MIKIRO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: OZAKI, AKIO
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             131 IIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYP-LELTDVG-A 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           189 WK--ECKTGDVVTVDLANSVFINHTSGKEYKLKPIGDAGPVIEAGGIFAYAR 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       65 VLVAGPDFGTGSSREHAVWALMDYGFRAVFSSRFADIFRGNSGKAGMLTGIMEQSDIELL 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              18 NVDTDQIIPAVYLKRVTR------TGFEDGLFSNWRQNDPNFVLNTDTYKNGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        77 NIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPT-----PFVAPGEESSRYA 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10.6%;
Similarity 30.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OCHIAI, KEIKO
YOKOI, HARUHIKO
TATEISHI, NAOKO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MIZOGUCHI, HIROSHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SENOH, AKIHIRO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IKEDA, MASATO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
10.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; Score 134; DB 9; 1; Pred. No. 2.3e-05; 20; Mismatches 62;
Score 130; DB 9;
Pred. No. 0.00046;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 197;
                      Length 943;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels 38;
```

Gaps

6;

64

RESULT 11

Q 밁 Ş В δ

Matches

æ

Qy 멍 QΥ В QΥ В QΥ

```
US-09-815-242-11648
                                                                                                                                                                                                                                                                                                                                              ORGANISM: Klebsiella pneumoniae US-09-815-242-11648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 11648, Application US/09815242 Patent No. US20020061569A1
                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 11648
                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION NUMBER: 60/207,727
PRIOR FILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: 60/242,578
PRIOR FILING DATE: 2000-10-23
PRIOR APPLICATION NUMBER: 60/253,625
PRIOR FILING DATE: 2000-11-27
PRIOR FILING DATE: 2000-11-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION NUMBER: 60/191,078
PRIOR FILING DATE: 2000-03-21
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR FILING DATE: 2000-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION NUMBER: US/09/815,242
CURRENT FILING DATE: 2001-03-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION: Identification of Essential TITLE OF INVENTION: Prokaryotes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION NUMBER: 60/257,931
PRIOR FILING DATE: 2000-12-22
PRIOR APPLICATION NUMBER: 60/269,308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILE REFERENCE: ELITRA.011A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Haselbeck, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQ ID NOS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        110 LP-----SAAYPTPFVAPG-----EESSRY-----AIIVGGANFGCGSSREHAPVA 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            890 GETPKTVKVTATKENGDVVEFDAVVRIDTPGEADYYRHGGILQYVLRQNAASSK 943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               211 -TSGKEYKLKPIGDAGPVIE---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        831 TNLLGIRAVITESFERIHRSNLIGMG-VVPLQFPAGESHESLGLDGTETFDITGLTALNE 889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   151 LGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVGAWKECKTGDVVTVDLANSVFINH 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               771 LQNQLVDIAGGYTRDFTQEGAPQAFIYDASVNYKAAGIPLVVLGGKEYGTGSSRDWAAKG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           713 LGDSVTTDHISPAS--SIKPGTPAAQYLDEHGVERHDYNSLGSRRGNHEVMMRGTFANIR 770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    74 VGDNIDTDQIIPAEHLTLVPSKP------DEYRKLGS-----FAFAG 109
162 EGYARIFFRNSVATGEVYPLELTD 185 :| | | | : | : | : | : | : |
                                                                                                               103
                                                                   45
                                                                                                                                                                                                      43 RRAGSIVPAAAAAAAGSSSPSSAVFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKL 102
                                                                                                                                                                                                                                                    Local Similarity 28.5 es 41; Conservative
                                                                                                            GSFAFAGLPSAAYPTP-FVAPGEESSRYAIIVGGANFGCGSSREHAPVALGAAGARAIVA 161
                                                                 NDWRFLD-DKGQQPNPEFVLNFPEYQGASILLARENFGCGSSAS-TPWALIDYGFKVVIA 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    54;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Xu, H. Howard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Carr, Grant J.
Yamamoto, Robert T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Trawick, John D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          wall, Danie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Zyskind, Judith W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2001-02-16
                                                                                                                                                                                                                                                                               9.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       28;
                                                                                                                                                                                                                                                         17;
                                                                                                                                                                                                                                                         Score 120; DB 10;
Pred. No. 0.00052;
7; Mismatches 60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                  NVDTDAIIPKQFLQKVTRTGFGAHLF 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGGIFAYARKTGMIASK 246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;88
                                                                                                                                                                                                                                                                                                    Length 200;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                           26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9;
                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 14
US-09-925-302-700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-925-302-700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-779-307-2
                                                                           ; ORGANISM: Homo sapiens US-09-779-307-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQ ID NO 700
LENGTH: 417
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 700, Application US/09925302
Patent No. US20020044941A1
GENERAL INFORMATION:
APPLICANT: Rosen et al.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Patent N. GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: Taupier Jr., Raymond
APPLICANT: Maiumder, Kumud
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sequence 2, Application US/09779307
Patent No. US20020137675A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                         SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION NUMBER: US/09/925,302
CURRENT FILING DATE: 2001-08-10
PRIOR APPLICATION NUMBER: PCT/US00/05918
PRIOR FILING DATE: 2000-03-08
         Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                             APPLICANT: Majumder, Kumud
APPLICANT: Vernet, Corine
APPLICANT: Vernet, Corine
APPLICANT: Prayaga, Sudhirdas
APPLICANT: Prayaga, Sudhirdas
TITLE OF INVENTION: Polynucleotides and Polypeptides Encoded Thereby
FILE REFERENCE: 15966-662 US
CURRENT APPLICATION NUMBER: US/09/779,307
CURRENT FILING DATE: 2001-02-07
PRIOR APPLICATION NUMBER: 60/180,880
PRIOR PILING DATE: 2000-02-08
PRIOR FILING DATE: 2000-02-08
PRIOR FILING DATE: 2000-02-08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION: Nucleic Acids, Proteins and Antibodies FILE REFERENCE: PAlO4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQ ID NOS: 896
SOFTWARE: PatentIn Ver. 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION NUMBER: 60/124,270 PRIOR FILING DATE: 1999-03-12
                                                                                                                                                                                                                                                         PRIOR APPLICATION NUMBER: 60/181,656
PRIOR FILING DATE: 2000-02-10
PRIOR APPLICATION NUMBER: 60/182,795
                                                                                                                                                                                            SOFTWARE: PatentIn Ver. 2.1
                                                                                                                                                                                                                  PRIOR FILING DATE: 2000-02-15
NUMBER OF SEQ ID NOS: 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM: Homo sapiens
                                                                                                                           LENGTH: 538
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              103 PSFADIFYGNSF-NNQLLPVTLSD 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         319 GIKAVLAESYERIHRSNLVGMG-VIPLE 345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     155 GARAIVAEGYARIFFRNSVATGEVYPLE 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                259 NRFLNKQAPQTIHLPSGEILDVFDAAERYQQAGLPLIVLAGKEYGAGSSRDWAAKGPFIL 318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              110 ---LPSAAYPTPEVAPGE-----ESSRY-----AIIVGGANFGCGSSREHAPVALGAA 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          199 LGDSVTTDHISPAGNIARNSPAARYLTNRGLTPREFNSYGSRRGNDAVMARGTFANIRLL 258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        74 VGDNIDTDQIIP------AEHLTLVPSKPDEYRKLGS------FAFAG---- 109 .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2.0
            26.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 112; DB 10;
Pred. No. 0.0082;
4; Mismatches 50;
              Score 105.5; DB 10; Pred. No. 0.048;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 417;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels 40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
```

Q Вb Qy

Mat	Matches	61; Conservative 19; Mismatches 97; Indels 53; Gaps 10;
VQ	17	QLTCHRLHSLKC
DЬ	115	115 APALSPRSSFASSSASDASKPSSPRGSLLLDGAGAGGAGGAGGSRPCSNRTSGI 165
Qy	77	EYRKLGSFAF
В	166	166 SMGYDQRHGSPLPAGPCLFGPPLAGAPAGY-SPGGVPSAYPELHAAL 211
Qy	136	136ANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVG 187
В	212	212 DRLYAQRPAGFGCQESRHSYPPALGSPGALAGAGVGAAGPLERRGAQPGRHSVT 265
VΩ	188	188 AWKECKTGDVTVDLANSVFINHTSGKEYKLKPIGDAGPVIEAGGI 233
Дb	266	266 GYGDCAVGARYQDELTALLRLTVGTGGREAGARGEPSGI 304
Searc	h com	Search completed: March 31, 2003, 09:13:33 Job time : 16 secs

_		
,		
*		
		•

	Resul No		Database	Post-	Minimum Maximum	Total	Searc	Scoring	Title: Perfect Sequenc	Run on	om pr	
2225 2226 2226 2226 2226 2226 2226 2226		Pred scor and		proce	imum DB imum DB	numbe	ched:		a	:	protein	
710.5 657 627 311.5 267.5 2771 267.5 260.5 250.5 252.7 210.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5 220.5	Score	is g		essing	B seq	0		table:	core:		1	
133 8 8 1 5 5 5 8 9 1	Query Match	ed th	PIR_ 1: p 2: p 3: p 4: p	: Mini Maxi List	length: length:	f hits	28322	BLOSUM6: Gapop 1	US-10 1266 1 MAA	March	protein	Сор
251 253 256 256 256 216 216 219 211 163 164 165 166 206 207 207 207 207 207 209 209 209 209 209 209 209 209 209 209	Length	numbe an or y anal	73:* 5ir1:* 5ir2:* 5ir3:*	Ma fi	2000	satisfy	4 seqs,	M62 10.0 ,	-10-027-450-47 66 MAAALSGTAVSTAALLAP	31, 20	search,	Copyright
000000000000000000000000000000000000000	DB	of gua sis		440	000000	ing	961	Gape	0-47 STAAI	2003, (	usin	GenCore (c) 1993
H84861 T472363 E704251 D64459 E704251 D64459 E704261 D64459 E704261 D72394 H75946 D72394 H75946 D72394 H75946 D72394 H75946 D72394 H75946 D72394 H75946 D72394 H75946 D72394 H75946 D72394 H75946 D72394 H75946 D72394 H75946 D72394 H75946 D72394 H75946 D72394 H75946 D72394 H75946 D72394 H75946 D72394 H75946 D72394 H75946 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D72394 D	Ħ	results l to the of the to		.00% 5 summar	Ü	chosen p	34422 re	pext 0.5	LAPIR	09:06:23	g sw	
	 	predicted score of t stal score		ies		arameters:	sidues		AGG	; Search t (without 544.033	model	version 5.1.4_p5_ - 2003 Compugen
		by cha he rea dist				283			AGGIFAYARKTGMIASKAAA	ime 44 Seco alignments Million cel		_p5_4578 jen_Ltd.
3-isopropylmalate 4-isopropylmalate 5-isopropylmalate 5-isopropylmalate 3-isopropylmalate	Descrip	ance to have sult being cibution.				224			'GMIASKA	nd 1		
-isopropylmalate	otion	ve a printed							AA 249	lg updates/		
malate improte il prote il prote il prote il prote malate il prote il	:	ed,								/sec		

45	44	43	42	41	40	39	38	37	36	35	34	ω ω	32	31	30
154.5	154.5	155	155	155.5	158.5	159	161.5	167.5	167.5	168	169	169.5	170	171.5	171.5
12.2	12.2	12.2	12.2	12.3	12.5	12.6	12.8	13.2	13.2	13.3	13.3	13.4	13.4	13.5	13.5
201	201	779	201	201	211	190	177	216	201	200	213	193	213	208	202
Ν	N	N	N	N	2	N	Ν	2	2	2	N	N	2	N	N
C85489	C90638	S64011	S07306	AC0516	AB3561	В89998	H75373	F97693	AE2919	A82071	C81836	AG1694	E81128	139571	в87273
isopropylmalate is	isopropylmalate is	3-isopropylmalate	probable 3-isoprop	3-isopropylmalate	3-isopropylmalate	probable 3-isoprop	3-isopropylmalate								

## ALIGNMENTS

RESULT 1
H84861
: Stopropylmalate dehydratase, small subunit [imported] - Arabidopsis thaliana c;Species: Arabidopsis thaliana (mouse-ear cress)
C;Species: 02-Feb-2001 #sequence\_revision 02-Feb-2001 #text\_change 02-Feb-2001

C;Accession: H84861
R;Lin, X.; Kaul, S.; Rounsley, S.D.; Shea, T.P.; Benito, M.I.; Town, C.D.; Fujii, C.M.; Koo, H.; Moffat, K.S.; Cronin, L.A.; Shen, M.; VanAken, S.E.; Umayam, L.; Tallon euss, D.; Nierman, W.C.; White, O.; Eisen, J.A.; Salzberg, S.L.; Fraser, C.M.; Vente: Nature 402, 761-768, 1999
A;Title: Sequence and analysis of chromosome 2 of the plant Arabidopsis thaliana.
A;Reference number: A84420; MUID:20083487; PMID:10617197
A;Accession: H84861
A;Status: preliminary

A;Cross-references: GB:AE002093; NID:g3763918; PIDN:AAC64298.1; GSPDB:GN00139

A; Molecule type: DNA A; Residues: 1-251 <STO>

RESULT 2
747781
3-isopropylmalate dehydratase-like protein (small subunit) - Arabidopsis thaliana
N;Alternate names: protein F17J16.40
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 20-Apr-2000 #sequence\_revision 20-Apr-2000 #text\_change 20-Apr-2000 Вþ Qy QΥ C;Genetics: A;Gene: At2g43090 A;Map position: 2 밁 Q 밁 Qy B 뫄 Q Query Match
Best Local Similarity
Matches 153; Conserv 116 SYKERFVQPGEMKTKYSIIIGGENFGCGSSREHAPVCLGAAGAKAVVAQSYARIFFRNSV 175 114 AYPTPFVAPGEESSRYAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSV 173 232 GIFAYARKTGMIASKAA 248 235 GIFAYARKAGMIPSAAA 251 1 MAASLQSANPTLSRTLASPNKPSSFATFRSPFL--RFNSTSV--ASNFKPLVSREASSSF 56 1 MAAALSGTAVSTAALLAPIRAPTSAFIRRSQLTCHRLHSLKCRRAGSIVPAAAAAAAAGSS Conservative 56.1%; Score 710.5; DB 2; 59.5%; Pred. No. 4e-51; tive 27; Mismatches 62; Indels Length 251; 15; Gaps 9

T47781

```
A; Status: preliminary
A; Molecule type: DNA
A; Residues: 1-253 < DAN>
A; Cross references: EMBL: AL163527
A; Experimental source: cultivar Col
C; Genetics:
A; Map position: 3
                                                                                                                                                                                                                                                                                    Nature 402, 761-768, 1999
A; Title: Sequence and analysis of chromosome 2 of the plant Arabidopsis thaliana.
A; Reference number: A84420; MUID:20083487; PMID:10617197
A; Accession: A84862
A; Status: preliminary
A; Molecule type: DNA
A; Residues: 1-256 <STO>
A; Cross-references: GB:AE002093; NID:g3763919; PIDN:AAC64299.1; GSPDB:GN00139
A; Gene: At2943100
A; Map position: 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                R:D'Angelo, M.; Vezzi, A.;
submitted to the Protein Se
A;Reference number: Z24476
A;Accession: T47781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 02-Feb-2001 #sequence_revision 02-Feb-2001 #text_change 02-Feb-2001
C;Accession: A84862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C; Accession:
R; D'Angelo, N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                 В
                                                            20
                                                                                              В
                                                                                                                          Qγ
                                                                                                                                                              밁
                                                                                                                                                                                         Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3-isopropylmalate dehydratase, small subunit [imported] - Arabidopsis thaliana
20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             143
     179
                                 127
                                                                 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                8
                                                                                                                              60
                                                                                                                                                              11
                                                                                                                                                                                                                                             Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          F17J16.40
                                                                                                                                                                                              4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SAFIR-RSQLTCHRLHSLKCRRAGSIVPAAAAAAAGSSSPSSAVFHGECFVVGDNIDTDQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SPFLQLKSASTIFNYKPLTSSSATIITRVAASSSDSGESITRETFHGLCFVLKDNIDTDQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVGAWKECKTGDVVTVDL 202
                                                            FVAPGEESSRYAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEV 178
                                                                                                NEALANTTFHGLCYVLKDNIDTDQIIPAGAACTFPSNQQERDEIAAHALSGLPD-FHKTR 126
                                                                                                                            SSP-SSAVFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTP 118
                                                                                                                                                                                            ALSGTAVSTAALLAPIRAPTSAFIRRSQLTCHRLHSLKCRRAG----SIVPAAAAAAAAGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEDGSSLLINHTTRKEYKLKPLGDAGPVIDAGGIFAYARKAGMIPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ---ANSVFINHTSGKEYKLKPIGDAGPVIEAGGIFAYARKTGMIAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SREHAPVCLGAAGAKAVVAESYARIFFRNCVATGEIFPLE-SEVRICDECKTGDVVTIEH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IIPAEYGTLIPSIPEDREKLGSFALNGLPK-FYNERFVVPGEMKSKYSVIIGGDNFGCGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGEESSRYAIIVGGANFGCGS 142
                                   FIEPGENRSKYSIIIGGENFGCGSSREHAPVCLGAAGAKAIVAESYARIFFRNSVATGEV
                                                                                                                                                              ALPCSSTKTSSSLATFRSP---FLRFNGSTSLIPSSISITSRGTSSPTIIPRAAASESDS 67
   YPLELTDVGAWKECKTGDVVTVDLANS - - VFINHTSGKEYKLKPIGDAGPVIEAGGIFAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          al Similarity
135; Conser
                                                                                                                                                                                                                            136;
                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .; Modesto, D.; Pigazzi, M.; Valle,
Sequence Database, April 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         51.4%;
                                                                                                                                                                                                                                           49.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Columbia;
                                                                                                                                                                                                                              38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 651; DB 2; Pred. No. 3.1e-46;
                                                                                                                                                                                                                                           Score 627; DB 2
Pred. No. 3e-44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BAC clone F17J16
                                                                                                                                                                                                                                                          DB 2; Length 256;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           56;
                                                                                                                                                                                                                                65;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mewes, H.W.;
                                                                                                                                                                                                                                12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             82
      236
                                     186
                                                                                                                                                                                                 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Rudd,
                                                                                                                                                                                                                                6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       s.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
E69328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
        멂
                                   Qy
```

```
A;Reference number: A72200; MUID:99287316; PMID:10360571
A;Accession: A72363
A;Status: preliminary
A;Molecule tvne. """
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C;Species: Thermotoga maritima
C;Date: 11-Jun-1999 #sequence_revision 11-Jun-1999 #text_change 21-Jul
C;Accession: A72363
C;Accession: A72363
R;Nelson, K.E.; Clayton, R.A.; Gill, S.R.; Gwinn, M.L.; Dodson, R.J.;
R;Nelson, K.E.; Clayton, R.A.; Gill, S.R.; Gratt, M.S.; Phillips, C./
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Garrett, M.M.; Stewart, A.M.; Cotton, M.D.; Pratt, M.S.; Phillips,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ър
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Residues: 1-166 <ARN>
A;Cross-references: GB:AE001730; GB:AE000512; NID:g4981062; PIDN:AAD35640.1; PID:g498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3-isopropylmalate dehydratase,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Gene:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Experimental source: strain MSB8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            187
          108
                                                                                               186 VGAWKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGD-AGPVIEAGGIFAYARK
                                                                                                                                                                                                                                      126 SSRYAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTD 185 : :|| | | | | | | | | | | | : :
                                                                                                                                                                                    52 DIKGSIIVAGENFGCGSSREHAPVAIKAAGISCVIAKSFARIFFRNAINIG----LPIVE
                                                                                                                                                                                                                                                                                                                                                                                                                                    69 GECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPG---EE 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                                                                       7 GKVFVFGDNVNTDEIIPARYLN--TSDPQELAK---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ARMMGMIPSLA 256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FPLE-SEVRVCEECKTGDTVTIELSDSGGLLTNHTTGKNYKLKSIGDAGPVIDAGGIFAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ARKTGMIASKA
Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    24.68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 small subunit - Thermotoga maritima (strain MSB8)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 311.5; DB 2;
Pred. No. 1.6e-18;
""" the state of th
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                 YCMEDARPGFGRRD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bacteria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21-Jul-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           J.; Haft, D.H.; Hi
C.A.; Richardson,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                245
                                                                                                                                                                                                                                                                                                                                                                                                      51
                                                                                                                                                                                                             107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <u>ب</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hic
```

A;Authors: Utterback, T.; Cotton, M.D.; Spriggs, T.; Artiach, P. Smith, H.O.; Woese, C.R.; Venter, J.C. A;Title: The complete genome sequence of the hyperthermophilic, A;Reference number: A69250; MUID:98049343; PMID:9389475
A;Accession: E69328 ; Fleischmann, R.D.; Quackenbush, J.; Lee, N.H.; Sutton, G. Glodek, A.; Zhou, L.; Overbeek, R.; Gocayne, J.D.; Weidman, Nature 390, 364-370, 1997 C;Species: Archaeoglobus fulgidus
C;Date: 05-Dec-1997 #sequence\_revision 05-Dec-1997 #text\_change 22-Oct-1999
C;Accession: E69328 R;Klenk, H.P.; Clayton, R.A.; Tomb, J.F.; White, O.; Nelson, K.E.; Ketchum, K.A.; Dod.; Fleischmann, R.D.; Quackenbush, J.; Lee, N.H.; Sutton, G.G.; Gill, S.; Kirkness, E A;Cross-references: GB:AE001061; GB:AE000782; NID:g2689384; PIDN:AAB90610.1; A; Molecule type: DNA A; Residues: 1-161 <K A; Status: preliminary; nucleic acid sequence not shown; translation 3-isopropylmalate dehydratase, Matches Query Match 69 Local N GECFYVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGL-PSAAYPTPFVAPGEESS 127 GRAWKFGDDIDTDVIIQGKYLVI--NEPEE----LAKHVFENLRPEFA-Similarity Conservative <KLE> 21.5%; small subunit (leuD-1) homolog -30; Score 272; DB 2; Pred. No. 2.7e-15; 0; Mismatches 58; Length 161 J.F.; McDonald, 'O' : sulfate-reducing Archaeoglobus Kaine, B.P.; KEVK 47 not shown Gaps PID: g264 6; fulgidu Sykes,

arch

```
RESULT 7
D64459
3-isopropylmalate dehydratase (EC 4.2.1.33) - Methanococcus jannaschii
C;Species: Methanococcus jannaschii
C;Species: Methanococcus jannaschii
C;Decies: Methanococcus jannasch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Cross-references: GB:AE000738; NID:g2983801; PIDN:AAC07359.1; PID:g2983802; GB:AE00065
A;Experimental source: strain VF5
C;Genetics:
                                                                                                                                                                                                                        A;Reference number: A64300; MUID:96337999; PMID:8688087 A;Accession: D64459
                                                                                                                                                                                                                                                                                                                            R;Bult, C.J.; White, O.; Olsen, G.J.; Zhou, L.; Fleischmann, R.D.; Sutton, G.G.; Bla ; Reich, C.I.; Overbeek, R.; Kirkness, E.F.; Weinstock, K.G.; Merrick, J.M.; Glodek, rson, J.D.; Sadow, P.W.; Hanna, M.C.; Cotton, M.D.; Roberts, K.M.; Hurst, M.A. Science 273, 1058-1073, 1996
A;Authors: Kaine, B.P.; Borodovsky, M.; Klenk, H.P.; Fraser, C.M.; Smith, H.O.; Woes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 6
E70421
3-isopropylmalate dehydratase -
A;Map position: REV1223059-1222553
C;Keywords: carbon-oxygen lyase; h
                                                                                                   A;Cross-references: GB:U67568; GB:L77117; NID:g2826383;
                                                                                                                               A;Status: preliminary; nucleic acid sequence not shown; translation not shown A;Molecule type: DNA A;Residues: 1-168 <BUL>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             日
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Molecule type: DNA
A; Residues: 1-219 <AQF>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Status: preliminary; nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Title: The complete genome A; Reference number: A70300; NA; Accession: E70421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Nature 392, 353-358, 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     R;Deckert, G.; Warren, P.V.; Gaasterland, T.; Young, W.G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C/Species: Aquifex aeolicus
C/Date: 08-May-1998 #sequence_revision
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                       Genetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Tenn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PEFAKEHKEGDIIVAGKNFGSGSSREHAPIAIKYSGVPVVIAKSFARIFFRNAINIG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SRYA-----IIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVY 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FHGECFVVGDNIDTDQIIFAEHLTLVPSKPDEYRKLGSFAFAGLFSAAYPTFFVAFGEES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AYARKTGMIASK 246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ETDKIEDGDELEVDYEKGVIYNKTKGEEYPINPLPDFLKEILEKGGLVEFAK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AWKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGD-AGPVIEAGGIFAYAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RYAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVG 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AYAKE -- KLASK 219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -LPIVEAPEAVDEIEHGDEIEVDLEKGVIKNLRTGKEYQATKFPKELQD-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PLELTDV-GAWKECKTGDVVTVDLANSVFINHTSGKEYKL----KPIGDAGPVIEAGGIF 234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FRGRVWKFGDNVDTDQIIPARYLN--TSDPYELAK------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity 37.572; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            E70421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of the hyperthermophilic bacterium Aquifex aeolicus MUID:98196666; PMID:9537320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 271; DB
Pred. No. 4.7e
27; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Aquifex aeolicus
   hydro-lyase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sequence not shown; translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    08-мау-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4.7e-15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 219;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ----HVMEDSEH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                   PIDN:AAB99283.1; PID:g1591913;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Lenox, A.L.; Graham;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -ILKAGGLM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    238
                                                                                                                                                                                                                                                                                                   Methanococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21-Jul-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        05-Nov-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                   jannaschi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     D.E.;
                                                                                                                                                                                                                                                                                                                                      Woese,
                                                                                                                                                                                                                                                                                                                                                                                                                               Blake,
dek, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
```

```
RESULT 9
B97290
3-isopropylmalate dehydratase, small chain [imported] - Clostridium acetobutylicum C;Species: Clostridium acetobutylicum C;Date: 14-Sep-2001 #sequence_revision 14-Sep-2001 #text_change 14-Sep-2001 C;Accession: B97290
R;Nolling, J.; Breton, G.; Omelchenko, M.V.; Markarova, K.S.; Zeng, Q.; Gibson, R.; Daly, M.J.; Bennett, G.N.; Koonin, E.V.; Smith, D.R.
J. Bacteriol. 183, 4823-4838, 2001
A;Title: Genome Sequence and Comparative Analysis of the Solvent-Producing Bacteri A;Reference number: A96900; MUID:21359325; PMID:21359325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Cross-references: GB:AE000860; GB:AE000666; NID:g2621915; PIDN:AAB85327.1; A;Experimental source: strain Delta H C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 8
E69210
3-isopropylmalate dehydratase, LeuD subunit - Methanobactefium thermoautotrophicum
C:Species: Methanobacterium thermoautotrophicum
C:Date: 05-Dec-1997 *sequence_revision 05-Dec-1997 *text_change 22-Oct-1999
C:Accession: E69210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R;Smith, D.R.; Doucette-Stamm, L.A.; Deloughery, C.; Lee, H.; Dubois, J.; Aldredge, ', Qiu, D.; Spadafora, R.; Vicalre, R.; Wang, Y.; Wierzbowski, J.; Gibson, R.; Jiwani, ki, S.; Church, G.M.; Daniels, C.J.; Mao, J.; Rice, P.; Noelling, J.; Reeve, J.N. J. Bacteriol. 179, 7135-7155, 1997
                                           A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-163 <KUR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Gene:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Status: preliminary; nucleic acid sequence not shown; A;Molecule type: DNA
A;Residues: 1-170 <MTH>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Accession: E69210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Title: Complete genome sequence of Methanobacterium thermoautotrophicum Delta A;Reference number: A69000; MUID:98037514; PMID:9371463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ₽.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ΔÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                          A;Cross-references: GB:AE001437;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        107
                                                                                                                                                                                                                                                                                                                                                                                                                                          108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 185 DVGAWKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGDAGP-----VIEAGGIFAYARK 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                185 DVGAWKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGD-AGPVIEAGGIFAYARKT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  66 VFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGL-PSAAYPTPFVAPGE 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3 SIIKGRVWKFGNNVDTDAILPARY--LVYTKPEE---LAQFVMTG-ADPDFPKK-VKPGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4 IIRGRVWRFGDNVDTDMIIPGRYL-----RTFSLDELASHVMEGARPEFASQ---VRKGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MTH829
                                                                                                                                                                                                                                                                                                                                                                                                                                       KVDA----DDGDEVSIDLRSGQIRNLTAGSEYRMKPFNDYMLSILEDGGLVNHYLKT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ESSRYAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELT 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CKGISEKVNEGDELEVNLETGEIKNLTTGEVLK-----GQKLPEFMMEILEAGGLMPYLKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ESSRYAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELT 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----IIVGGKNFGCGSSREHAPLGLKGAGISCVIAESFARIFYRNAINVG--LPL-IE 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               69;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IIVAGRNFGCGSSREQAPVALKHAGVVAIIAESFARIFYRNAINIG--LPVIMA 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21.1%; 38.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29;
PIDN:AAK81109.1; um acetobutylicum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 266;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 267.5; DB 2; Pred. No. 6.7e-15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9e-15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          168;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                124
                                                                                                                                                              Bacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PID:9262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ξ:
```

A; Experimental source: C; Genetics:

Clostridium

PID:g15026240; ATCC824

GSPDB:GN00168

```
A;Status: preliminary; nu
A;Molecule type: DNA
A;Residues: 1-162 <MTH>
A;Cross-references: GB:AF
A;Experimental source: st
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 10
C75045
C75045
3-Isopropylmalate dehydratase, small chain (leud-1) PAB0892 - Pyrococcus abyssi C;Species: Pyrococcus abyssi C;Species: Pyrococcus abyssi C;Species: Pyrococcus abyssi C;Accession: C75045
C;Accession: C75045
R;anonymous, Genoscope submitted to the EMBL Data Library, July 1999
A;Description: Pyrococcus abyssi genome sequence: insights into archaeal chromose A;Reference number: A75001
A;Reference number: A75001
A;Accession: C75045
A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Gene:
                                                                                                                                              E69051
3-isopropylmalate dehydratase, LeuC subunit - Methanobacterium thermoautotrophicum (c;Species: Methanobacterium thermoautotrophicum (c;Species: Methanobacterium thermoautotrophicum (c;Species: Methanobacterium thermoautotrophicum (c;Date: 05-Dec-1997 #sequence_revision 05-Dec-1997 #text_change 22-Oct-1999 (c;Date: 05-Dec-1997 #sequence_revision 05-Dec-1997 #text_change 22-Oct-1999 (c;Date: 05-Dec-1997 #sequence_revision 05-Dec-1997 #text_change 22-Oct-1999 (c;Date: 05-Dec-1997 #sequence, R; Winth, D.R.; Dubois, J.; Aldredge, R;Smith, D.R.; Doucette-Stamm, L.A.; Deloughery, C.; Lee, H.; Dubois, J.; Aldredge, R;Smith, D.R.; Doucette-Stamm, L.A.; Wang, Y.; Wierzbowski, J.; Gibson, R.; Jiwan; ki, S.; Church, G.M.; Daniels, C.J.; Mao, J.; Rice, P.; Noelling, J.; Reeve, J.N. ki, S.; Church, G.M.; Daniels, C.J.; Mao, J.; Rice, P.; Noelling, J.; Reeve, J.N. ki, S.; Church, G.M.; Daniels, C.J.; Mao, J.; Rice, P.; Noelling, J.; Reeve, J.N. ki, S.; Church, G.M.; Daniels, C.J.; Mao, J.; Rice, P.; Noelling, J.; Reeve, J.N. ki, S.; Church, G.M.; Daniels, C.J.; Mao, J.; Rice, P.; Noelling, J.; Reeve, J.N. ki, S.; Church, G.M.; Daniels, C.J.; Mao, J.; Rice, P.; Noelling, J.; Reeve, J.N. ki, S.; Church, G.M.; Daniels, C.J.; Mao, J.; Rice, P.; Noelling, J.; Reeve, J.N. ki, S.; Church, G.M.; Daniels, C.J.; Mao, J.; Rice, P.; Noelling, J.; Reeve, J.N. ki, S.; Church, G.M.; Daniels, C.J.; Mao, J.; Rice, P.; Noelling, J.; Reeve, J.N. ki, S.; Church, G.M.; Daniels, C.J.; Mao, J.; Rice, P.; Noelling, J.; Rice, P.; Noelling, J.; Rice, J.; Noelling, J.; Rice,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Experimental source: strain C; Genetics: A; Gene: leuD-1; PAB0892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Cross-references: GB:AJ248287; GB:AL096836; NID:g5458657; PIDN:CAB50256.1; PID:e15161:
A;Experimental source: strain Orsay
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type: DNA
A; Residues: 1-164 <KAW>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                     Status: preliminary; nucleic acid sequence not shown;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            68 HGECFVVGDNIDTDQIIPAEHL-TLVPSK------PDEYRKLGSFAFAGLPSAAYP 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAC3172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      თ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TPFVAPGEESSRYAIIVGGANFGCGSSSREHAPVALGAAGARAIVAEGYARIFFRNSVATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            --FPI-LECEEAVNDASTGDKLEVDFIEGIIKNVTLNKEYKAQPFPD 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EVYPLELTDVGAWKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGD 223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGEESSR 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VDRIETGDELEVDFSSGEIRNLTKGEVYRANPFPDFIMEIIKAGGLVEWAKR 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGD-AGPVIEAGGIFAYARK 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GRAWKYGDNIDTDVIIPARYLN--TSDPKE---LAKHVLEDLDPEFRSK--MKPGD-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        l Similarity
67; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
         GB:AE000901; GB:AE000666; NID:g2622486; PIDN:AAB85864.1; PID:g262249
ce: strain Delta H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; Score 258.5; DB 2
; Pred. No. 3.6e-14;
26; Mismatches 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 260; DB 2;
Pred. No. 2.7e-14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 163;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                 translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      into archaeal chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             164;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                        not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7;
                                                                                                                                                                                                                                                                                                                     Jiwani,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (stra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             stru
                                                                                                                                                                                                                                   funct
```

```
R;Bult, C.J.; White, O.; Olsen, G.J.; Zhou, L.; Fleischmann, R.D.; Sutton, G.G.; Bla; Reich, C.J.; Overbeek, R.; Kirkness, E.F.; Weinstock, K.G.; Merrick, J.M.; Glodek, rson, J.D.; Sadow, P.W.; Hanna, M.C.; Cotton, M.D.; Roberts, K.M.; Hurst, M.A. Science 273, 1058-1073, 1956
A;Authors: Kaine, B.P.; Borodovsky, M.; Klenk, H.P.; Fraser, C.M.; Smith, H.O.; Woes A;Title: Complete genome sequence of the methanogenic archaeon, Methanococcus jannass A;Reference number: A64300; MUID:96337999; PMID:8688087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3-isopropylmalate dehydratase (EC 4.2.1.33) - Methanococcus jannaschii C;Species: Methanococcus jannaschii C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 21-Jul-2000 C;Accession: F64458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
F64458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C; Genetics:
A; Gene: MTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                       A; Map position: FOR1215638-121619
C; Keywords: carbon-oxygen lyase;
                                                                                                                                                                                                                                                                                                                                                                                                      A; Molecule type: DNA
A; Residues: 1-170 <B
                                                                                                                                                               QY
                                                                                                                                                                                                   DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Status: preliminary; nucleic acid sequence not shown;
                                                              Дb
                                                                                             Qy
                                                                                                                                밁
                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                       A; Cross-references:
밁
                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                         Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               189 WKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGD-AGPVIEAGGIFAYARKTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               69
 164
                                                                  109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MTH1387
                                                                                                                                    54
                                                                                                                                                                                                                                 66 VFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGEE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ω
                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GKVWKFPDDVDTDIIIPGRYLVM----RDPEKLREHVMEGL-DPEFPSK-VKPGD----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GECEVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGEESSR 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TEKLNEGDEIEVDLDRGVIIR--GDDEFPFKKLPDFMVEILEKGGLIPYLKKKG
                                                                                                                                                                                                   VGAWKECKTGDVVTVDLANSVFINHTSGKEYKLK-PIGDAGPVIEAGGIFAYARKTGMIA 244
                                                                                                                                ----VIVAGENFGCGSSREQAVIAIKYCGIKAVIAKSFARIFYRNAINVGLIPIIANTD
                                                                                                                                                             SSRYAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTD 185
 SK
                                 SK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     l Similarity
66; Conserv
                                                                                                                                                                                                                                                                        64;
                                                                                                                                                                                                                                                                                        Similarity
 165
                                 246
                                                                  -EIKDGDIVEIDLDKEEIVITNKNKTIKCETPKGLEREILAAGGLVNYLKKRKLIQ
                                                                                                                                                                                                                                                                                                                                                         FOR1215638-1216150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                           <BUL>
                                                                                                                                                                                                                                                                                                                                                                                       GB:U67568; GB:L77117; NID:g2826383; PIDN:AAB99277.1;
                                                                                                                                                                                                                                                                                     19.8%; Score 250.5; DB 2
35.2%; Pred. No. 1.7e-13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       19.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26; Mismatches
                                                                                                                                                                                                                                                                        30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 252.5; DB 2; Pred. No. 1.1e-13;
                                                                                                                                                                                                                                                                                                                                         hydro-lyase
                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                          DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                         Length 170;
                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                               translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            19;
                                                                                                                                                                                                                                                                            19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         158
                                                                                                                                                                                                                                                                                                                                                                                                                                                not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          51
                                                                                                                                           108
                                                                                                                                                                                                                                                                                                                                                                                              PID:g1591907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ).; Woese
jannasc
                                                                                                                                                                                                                                                                               7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Blak
```

Gladek, H.P.; Clayton, R.A.; Tomb, J.F.; White, O.; Nelson, K.B.; Ketchum, K.A.; Do R.Klenk, H.P.; Clayton, R.A.; Tomb, J.F.; White, O.; Nelson, K.B.; Ketchum, K.A.; Do R.Klenk, H.P.; Clayton, R.D.; Ouackenbush, J.; Lee, N.H.; Sutton, G.G.; Gill, S.; Kirkness, Fleischmann, R.D.; Ouackenbush, J.; Lee, N.H.; Sutton, G.G.; Gill, S.; Kirkness, Glodek, A.; Zhou, L.; Overbeek, R.; Gocayne, J.D.; Weidman, J.F.; McDonald, L. Nature 390, 364-370, 1997

3-isopropylmalate dehydratase, small subunit (leuD-2) homolog - Archaeoglob C;Species: Archaeoglobus fulgidus C;Date: 05-Dec-1997 #sequence\_revision 05-Dec-1997 #text\_change 22-Oct-1999

small subunit (leuD-2) homolog -

Archaeoglobus

fulgidu

K.A.; Dod

H69469

RESULT

Sykes,

```
3-isopropylmalate dehydratase, small subunit - Deinococcus radiodurans (strain R1) (Speciles: Deinococcus radiodurans (C;Speciles: Deinococcus radiodurans (C;Date: 03-Dec-1999 #sequence_revision 03-Dec-1999 #text_change 17-Mar-2000 C;Accession: F75355 R;White, O.; Eisen, J.A.; Heidelberg, J.F.; Hickey, E.K.; Peterson, J.D.; Dodson, M.; Shen, M.; Vamathevan, J.J.; Lam, P.; McDonald, L.; Utterback, T.; Zalewski, S.; Smith, H.O.; Venter, J.C.; Fraser, C.M. Science 286, 1571-1577, 1999
hypothetical protein TM0292 - Thermotoga maritima (strain MSB8) C;Species: Thermotoga maritima C;Paccies: Thermotoga maritima C;Date: 11-Jun-1999 #sequence_revision 11-Jun-1999 #text_change 21-Jul-2000 C;Accession: D73394 R;Nelson, K.E.; Clayton, R.A.; Gill, S.R.; Gwinn, M.L.; Dodson, R.J.; Haft,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Authors: Utterback, T.; Cotton, M.D.; Spriggs, T.; Artlach, P.; Kaine, B.P.; Smith, H.O.; Woese, C.R.; Venter, J.C.
A; Title: The complete genome sequence of the hyperthermophilic, sulfate-reducin A; Reference number: A69250; MUID:98049343; PMID:9389475
A; Accession: H69469
A; Status: preliminary; nucleic acid sequence not shown; translation not shown
                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                       δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                               Ър
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Map position:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Residues: 1-200 Smiles
A; Cross-references: GB: AE002019;
A: Cross-references: strain R1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Molecule type: DNA
A; Residues: 1-208 <WHI>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Title: Genome sequence of the radioresistant bacterium Deinococcus radiodurans A; Reference number: A75250; MUID:20036896; PMID:10567266 A; Accession: F75355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뮵
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Cross-references: GB:AE000981; GB:AE000782; NID:g2689304; PIDN:AAB89489.1; PID:g26487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type: DNA
A: Residues: 1-165 <KLE>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gene: DR1784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                               133
                                                                                                                                                                                                                                        111
                                                                                                                                                                                                                                                                                             193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    111 ---IDSGDELEVDLGKGLVVNRTKGIEIRVKPIPEVMLKILHEGGLVSYVKKHGDI 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              129
                                                                                                                                                                                                                                                                                                                                             5
4
                                                                                                                                                                                                                                                                                                                                                                                                                                                 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                69 GECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGEESSR 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local
                                                                                                                                                                                                                                     QDGEEAELDLKGGTIRNPRTGKELSFVPVPQFALDVQKAGGWLEYMK 157
                                                                                                                                                                                                                                                                                          KTGDVVTVDLANSVFINHTSGKEYKLKPIGD-AGPVIEAGGIFAYAR 238
                                                                                                                                                                                                                                                                                                                                                                                            VGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVGAWKEC 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPF---VAPGEESSRYAII 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGDAG-PVIEAGGIFAYARKTGMI 243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           YAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVGA 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GRAWKFGDDISTDHITPGRYYHLRSNMPELAKHVMEDADPDFMKKFRPGDF------
                                                                                                                                                                                                                                                                                                                                          VAGADEGCGSSREHAVWALRGAGVSAVIAPNEARIYYRNSINNGE---LALECEGITELE
                                                                                                                                                                                                                                                                                                                                                                                                                                               DHINTDEIIPARHLT-----TDVESELAKYAMED-----YDKDFVRRVQPGD-----II 53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ---IVAGKNFGMGSSREHAPLALKIAGVSAVIAKSFARIFYRNAINVG--LPVLIADTDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                h 19.7%; Score 249; DB 2; Length 165; Similarity 34.1%; Pred. No. 2.2e-13; 60; Conservative 30; Mismatches 68; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18.1%; Score 229.5; DB 2
38.3%; Pred. No. 1.1e-11;
tive 21; Mismatches 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GB:AE000513; NID:g6459547; PIDN:AAF11332.1; PID:g645955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      59;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 208;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sulfate-reducing archaed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              55
     D.H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   R1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     R.J.
  Hickey
```

Search completed: March 31, Job time : 46 secs

2003, 09:09:42

```
Nature 399, 323-329, 1999
A;Title: Evidence for lateral gene transfer between Archaea A;Reference number: A72200; MUID:99287316; PMID:10360571
A;Accession: D72394
A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                     A;Molecule type: DNA
A;Residues: 1-166 <ARN>
A;Residues: 1-166 <ARN>
A;Cross-references: GB:AE001711; GB:AE000512; NID:g4980788; PIDN:AAD35380.1; PID:g498A;Experimental source: strain MSB8
                                                           DЬ
                                                                                         Qy
                                                                                                                              В
                                                                                                                                                          Qy
                                                                                                                                                                                              뮰
                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                            C; Genetics:
В
                          δÃ
                                                                                                                                                                                                                                                                                                                                A; Gene:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Garrett, M.M.; Stewart, A.M.; Cotton, M.D.;
C.M.
                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                             Query Match
155
                                                               102 VIELKEV---DEINOGDELEIDLENGVLKNLTTGKEYRFTPI----PKFLLEILKEDGIV 154
                                                                                                                                                                120 VAPGEESSRYAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVY 179
                                                                                             180 PLELTDVGAWKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGDAGP-----VIEAGGIF
                                                                                                                                47
                                                                                                                                                                                                                                                                             Local
                                                                                                                                                                                                                               66 VFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRK-----LGSFAFAGLPSAAYPTPF 119
                                                                                                                                                                                               1 MIRGRVWKFGDNISTDHIAPGRYFHL-RNNLEELAKHVLEDAMEDFA--
                                                                                                                                                                                                                                                                                                                                TM0292
                               AYARKTG
NYLKKHG
                                                                                                                              ----KKVQKGDIIVAGKNFGLGSSREHAARIIKIAGVSCIVAKSFARIFYRNAINVG-LP
                                                                                                                                                                                                                                                                 64;
                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                 Conservative
                             241
                                                                                                                                                                                                                                                                             18.0%;
                                                                                                                                                                                                                                                               ; Score 227.5;
; pred. No. 1.3e
26; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pratt,
                                                                                                                                                                                                                                                                               5; DB 2;
1.3e-11;
                                                                                                                                                                                                                                                                 60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            M.S.; Phillips,
                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               and
                                                                                                                                                                                                                                                                  37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bacteria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C.A.;
                                                                                                                                                                                                                                                               Gaps
                                                                                                                              101
                                                                                                                                                                                                 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Richardson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               from
                                                                                                                                                                                                                                                                 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               genome
```

٠.				
*				
			•	

```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Post-processing: Minimum Match 0%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Minimum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9:
                 332287654321098322287654321098322287654321098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB seq length: 0
DB seq length: 2000000000
              Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-027-450-47
1266
1 MAAALSGTAVSTAALLAPIR......AGGIFAYARKTGMIASKAAA 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             March 31, 2003, 09:05:28; Search time 25 Seconds (without alignments) 413.104 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        112892 seqs, 41476328 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gapop 10.0 ,
          224.5
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
221.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SwissProt_40:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
       DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gapext 0
   LEUD_THEMA
LE23_MCFU
LEUD_AQUACE
LE24_METJA
LE23_METJH
LE24_METJH
LE23_METJH
LE24_MCFU
LEUD_PYRHO
LEUD_PYRHO
LEUD_ACLA
LEUZ_SCHPO
LE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     112892
   029w25
029w25
029w25
0269673
0268673
02586673
02586617
02586617
0258663
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
0259393
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
02593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Description
g aquifex aeo
g methanobact
methanobact
methanobact
methanobact
methanococcus
lacchococcus
lacch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               thermotoga
archaeoglob
```

ρ γ

69 7

GECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPG---EE
|: || |||::||:||:|| :| | | | | ::
| SKVFVFGDNVNTDEIIPARYLN--TSDPQELAK------YCMEDARPGFGRRD

Ç	≆ ã O	DR DR DR SQ	88888888	4888888	RP RA	28888		RESULT LEUD_T		
ת	Query Ma Best Loo Matches	EMBL; TIGR; Inter Pfam; Leuci SEQUE	This between the use modi enti-	yen Nat	SEQUING SEQUING STRA MEDLINGLES HELD MEDLINGLES HELD MEDLINGLES HELD STEWN STE	The Bac NCE	30- 30- 31- 31- 31- 31- 31- 31- 31- 31- 31- 31	ULT 1 D_THEMA LEUD_		444440 5442 5432 5432 5432 5432 5432 5432 5432
o cecevoc	atch cal s	Pro Pro Pl NCI	SWI een Euro by fied fied ties	1 20	SEQUENCE FROM N.A. SEQUENCE FROM N.A. STRAIN=MSB8 / DSM 3109; MEDLINE=99287316; PubMed=1 Nelson K.E., Clayton R.A., Haft D.H., Hickey E.K., Pe McDonald L., Utterback T.R Stewart A.M., Cotton M.D., Stewart A.M., Cotton M.D., Stewart S.L., Smith H.O., Salzberg S.L.,	Thermotoga maritima Bacteria; Thermotog Thermotogaceae; The NCBI_TaxID=2336;	30-MAY-2000 (Rel. 30-MAY-2000 (Rel. 15-JUN-2002 (Rel. 3-isopropylmalate (Isopropylmalate	MA ID_THEMA		128 127 126 125 125 122 120.5 121 131 116.5 116.5 116.5 116.5
DUTDED	imilarity ; Conservat	00 A th		10172055	ROM N.A.  8 / DSM 3109.  28/3316; PubMe.  Clayton R  Hickey E.K  Utterback  M., Cotton M  J. Sutton M  J. Sutton H  LL. Smith H  for lateral of	maritima. Thermotogae; Iceae; Thermotogae; 1	(Rel. (Rel. (Rel. (Rel. halate			10.1 10.0 9.6 9.6 9.5 9.2
71102841	24.6 41.1 ive	5640. Acon tase_ ; Lya 18451	entry is copyrig iss Institute of sins Institute of informatics Inst fit institution is statement is n s a license agre to license@isb-	a-329(1999). 3-329(1999). ACTIVITY: 3-ISOPROPY ACTIVITY: 3-ISOPROPY SO CATALYSES 2-ISOPROPY 3-CARBOXYPESTVIANOUE). Leucine biosynthesis; CONSISTS OF TWO DIFFE	3109; pubMed=1036057 pubMed=1036057 E.K., Peterson back T.R., Mal ton M.D., Pratt ton G.G., Plei th H.O., Vente th H.O., Vente	ae; rmot	39, Created 39, Last se 41, Last an dehydratase isomerase) (	STANDARD;		198 207 208 961 207 207 207 205 891 780 781
T TIL VD	70	₹ 0 ·· ct ··	cop ute cs itu itu	TAN TWO	103	erm				
Dekonevi	Score 311 Pred. No. 5; Mismato		NOT entry is copyright. It is Swiss Institute of Bloinformat Bloinformatics Institute. The profit institutions as long this statement is not removed the statement agreement (See alicense@isb-sib.ch).	rm sequence of Thermotoga marillma."; rm 399:323-329(1999). CATALYTIC ACTIVITY: 3-ISOPROPYLMALATE = H(2)O (ALSO CATALYSES 2-ISOPROPYLMALEATE 4-MTHYLI-3-CARBOXYPENTANORE). PATHWAY: Leucine biosynthesis; second st SUBUNIT: CONSISTS OF TWO DIFFERENT SUBUN	60571; ill s.R. rson J.D Malek J Malek J ratt M.S Fleischmaenter J.O	Thermotogae (	ted) sequence   annotation ase small   (Alpha-I	PRT;	ALIGNMENTS	LEUD_MYCTU LEUD_BUCAN ACON_MYCAV LEUD_BUCRP LEUD_BUCRP LEUD_BUCTS ACON_LEGPN ACON_RICGN ACON_RICGN ACON_RICGN ACON_RICGN
OKI CCEVEVCI DCVV	.5; DB 1; 1e-18; ches 54;	roteome. EB6B0D22F.CRC6	produced atics and here are n as its c d. Usage e http://w	inep +2-	M.L., Do n W.C., her K.D. ips C.A., Eisen er C.M.; Archaea	(class); Thermotogales	ed) sequence update) senall subunit (EC 4.2. (Alpha-IPM isomerase) (I	166 AA.	MENTS	ATI DN DN AV AV AV PN PN PN PN PN PN
DT PEVA DC	Length 166; Indels 23		1 22 4 4 5	PYLMA = 3-	dson F Ketchu , Garr , Rich J.A.,	gales;	2.1.33) (IPMI).			053236 P56973 085073 0850766 085066 P48294 P37032 P37032 P37032 P37030 P37032 P37032 P37032 P37032 P37032 P37032
	; 3; Gaps		borat tatic on no mmerc nnour	LEATE + HYDROXY- LEUD.						mycobacter buchnera a buchnera a mycobacter buchnera a buchnera a buchnera a buchnera a buchnera a chegionella bos taurus rickettsia homo sapie sus scrofa
	5;		its way ial	† 						स्वर्भवव्यं ह

```
RESULT 2
LE23_ARCFU
LE
                                QΥ
                                                                                            밁
                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          γQ
                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collaboratic between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on it use by non-profit institutions as long as its content is in no was modified and this statement is not removed. Usage by and for commercia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Klenk H.-P., Clayton R.J., Tomb J.-F., White O., Nelson K.E., Klenk H.-P., Clayton R.J., Gwinn M., Hickey E.K., Peterson J.D., Retchum K.A., Dodson R.J., Gwinn M., Hickey E.K., Peterson J.D., Richardson D.L., Kerlavage A.R., Graham D.E., Kyrpides N.C., Fleischmann R.D., Quackenbush J., Lee N.H., Sutton G.G., Gill S., Kirkness E.F., Dougherty B.A., McKenney K., Adams M.D., Loftus B., Peterson S., Reich C.I., McNeil L.K., Badger J.H., Glodek A., Zhou L., Overbeek R., Gocayne J.D., Weidman J.F., McDonald L., Utterback T., Cotton M.D., Spriggs T., Artlach P., Kaine B.P., Sykes S.M., Sadow P.W., D'Andrea K.P., Bowman C., Fujii C., Garland S.A., Mason T.M., Olsen G.J., Fraser C.M., Smith H.O., Woese C.R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                        HSSP; P20004;
TIGR; AF0629;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                or send
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "The complete genome sequence of the hyperthermophilic, sulphate-reducing archaeon Archaeoglobus fulgidus.";
Nature 39:364-370(1997).
-i- CATALYTIC ACTIVITY: 3-ISOPROPYLMALATE = 2-ISOPROPYLMALEATE +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15-JUL-1998 (Rel. 36, Created)
15-JUL-1998 (Rel. 36, Last sequence update)
15-JUL-1998 (Rel. 36, Last sequence update)
15-JUR-2002 (Rel. 41, Last annotation update)
Putative 3-isopropylmalate dehydratase small subunit (EC 4.2.1.33)
(Isopropylmalate isomerase) (Alpha-IPM isomerase) (IPMI).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LE23_ARCFU 029626;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Venter J.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=98049343; PubMed=9389475;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN=VC-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Archaeoglobus fulgidus.
Archaea; Euryarchaeota; Archaeoglobi;
Archaeoglobaceae; Archaeoglobus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (Isopropylmalate
AF0629.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                      128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            108
                                                                                                                                                     69
                                                                                                                                                                                                                                         Local
                                                                                         N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SUBUNIT: CONSISTS OF TWO DIFFERENT SUBUNITS (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PATHWAY: Leucine biosynthesis; second step.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4-METHYL-3-CARBOXYPENTANONE).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    H(2)O (ALSO CATALYSES
                          RYAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVG 18
                                                                                   GRAWKFGDDIDTDVIIQGKYLVI--NEPEE---LAKHVFENLRPEFA------KEVK 47
                                                                                                                                GECFYVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGL-PSAAYPTPFVAPGEESS 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LKEADEFEEGDIAEVDLENGVVRNLTKGKEYRIRPYPEFLMKIMEAGGWLEYCLK 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VGAWKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGD-AGPVIEAGGIFAYARK 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            P20004; 1AMJ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AE001061;
                                                                                                                                                                                                              64;
                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    s requires a license agreement (See http://www.isb-sib.ch/announce/an email to license@isb-sib.ch).
                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          / DSM 4304 / ATCC 49558;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAB90610.1;
                                                                                                                                                                                                                                      21.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2-ISOPROPYLMALEATE
                                                                                                                                                                                                           30;
                                                                                                                                                                                                     Score 272; DE
Pred. No. 1.6e
30; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Archaeoglobales
                                                                                                                                                                                                                                DB 1;
..6e-15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ΑA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              +
                                                                                                                                                                                                           58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              H(2)0 =
                                                                                                                                                                                                                                                           Length 161;
                                                                                                                                                                                                                                                                                                                             CRC64;
                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3-HYDROXY
                                                                                                                                                                                                        20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    collaboration
                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        107
```

```
LEUD_AQUAE
ILU LAUDA
AC 067399
DT 30-MAY
DT 30-MAY
DT 15-JUN
DE 3-ISOP
DE (IEDDO
OS AQUIÍE
OC AQUIÍE
OC AQUIÍE
OC AQUIÍE
OX STRAIN
RX MEDLIN
RA DECKET
CC -!- PA
CC -!- PA
CC -!- SU
CC This &
CC This &
CC This CC
CC This CC
CC USE I
CC USE I
CC USE I
CC OT SET
CC EMBL;
DR EMBL;
DR EMBL;
DR EMBL;
SO SEQUEN
밁
                               δÃ
                                                                    В
                                                                                                     Qγ
                                                                                                                                          Вþ
                                                                                                                                                                       Qy
                                                                                                                                                                                                                B
                                                                                                                                                                                                                                               QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Jun-2002 (Rel. 41, Last sequence update)
3-isopropylmalate dehydratase small subunit (EC 4.2.1.33)
(Isopropylmalate isomerase) (Alpha-IPM isomerase) (IPMI).

Aquifex acolicus.
Bacteria; Aquificae; Aquifica-
Aquifex.
                                                                                                                                                                                                                                                                                                                                               InterPro; renvous:,
Pfam; PF00694; Aconitase_C; 1.
Leucine biosynthesis; Lyase; Complete proteome.
168 aa: 18786 MW; 25A34FE7FFCA09F3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  use by non-profit institutions as long as its content modified and this statement is not removed. Usage by an entitles requires a lineary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   aeolicus.";
Nature 392:353-358(1998).

-i- CATALYTIC ACTIVITY: 3-ISOPROPYLMALATE = 2-ISOPROPYLMALEATE +
H(2)0 (ALSO CATALYSES 2-ISOPROPYLMALEATE + H(2)0 = 3-HYDROXY-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Deckert G., Warren P.V., Gaasterland T., Young W.G., Lenox A.L., Graham D.E., Overbeek R., Snead M.A., Keller M., Aujay M., Huber Feldman R.A., Short J.M., Olson G.J., Swanson R.V.; "The complete genome of the hyperthermophilic bacterium Aquifex
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FI
STRAIN-VF5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LEUD_AQI
067399;
                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; AE000738; AAC07359.1; ALT_INIT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=98196666; PubMed=9537320;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=63363;
159
                                   235
                                                                      103
                                                                                                         180
                                                                                                                                                                               127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                104
                                                                                                                                            46
                                                                                                                                                                                                                                                 67 FHGECFYVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGEES 126
                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    48
                                                                                                                                                                                                                σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 s SWISS-PROT entry is copyright. It is produced through a collaboration ween the Swiss Institute of Bioinformatics and the EMBL outstation - European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PATHWAY: Leucine biosynthesis; second step. SUBUNIT: CONSISTS OF TWO DIFFERENT SUBUNITS: LEUC AND LEUD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4-METHYL-3-CARBOXYPENTANONE).
                                 AYARKTGMIASK 246
                                                                                                                                                           SRYA-----IIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVY
AYAKE -- KLASK 168
                                                                                                     PLELTDV-GAWKECKTGDVVTVDLANSVFINHTSGKEYKL----KPIGDAGPVIEAGGIF
                                                                                                                                          PEFAKEHKEGDIIVAGKNFGSGSSREHAPIAIKYSGVPVVIAKSFARIFFRNAINIG---
                                                                                                                                                                                                              FRGRVWKFGDNVDTDQIIPARYLN--TSDPYELAK--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AQUAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ETDKIEDGDELEVDYEKGVIYNKTKGEEYPINPLPDFLKEILEKGGLVEFAK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AWKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGD-AGPVIEAGGIFAYAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KGDFVVAGENFGCGSSREHAPLALKATGIEAVIAKSYARIFFRNAINIG----LRVLECK
                                                                    -LPIVEAPEAVDEIEHGDEIEVDLEKGVIKNLRTGKEYQATKFPKELQD---ILKAGGLM
                                                                                                                                                                                                                                                                                      72;
                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                          IPR000573; Aconitase_C.
                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STANDARD;
                                                                                                                                                                                                                                                                                                   21.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Aquificae (class); Aquificales; Aquificaceae;
                                                                                                                                                                                                                                                                                      27;
                                                                                                                                                                                                                                                                                  Score 271; DB 1;
Pred. No. 2.1e-15;
7; Mismatches 53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ΑA
                                                                                                                                                                                                                                                                                                                    Length 168;
                                                                                                                                                                                                                                                                                                                                                         CRC64;
                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                              ----HVMEDSEH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               238
                                                                                                                                                                                                                                                                                    40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Huber
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   for
                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₹.
                                                                                                                                                                                                                45
                                                                    158
                                                                                                     234
                                                                                                                                        102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    no
                                                                                                                                                                                                                                                                                    8
```

RESULT

```
RESULT
LE23_MI
ID LH
AC O3
DT 15
DT 15
                                                                                                                                                                                                                                  Ωy
                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
  LE23_METTH
026917;
15-JUL-1998
15-JUL-1998
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAIN-JAL-1 / DSM 2661 / ATCC 43067;

MEDLINE-96337999; PubMed-6688087;

Bult C.J., White O., Olsen G.J., Zhou L., Fleischmann R.D.,

Sutton G.G., Blake J.A., FitzGerald L.M., Clayton R.A., Gocayne J.D.,

Kerlavage A.R., Dougherty B.A., Tomb J.-F., Adams M.D., Reich C.I.,

Overbeek R., Kirkness E.F., Weinstock K.G., Merrick J.M., Glodek A.,

Scott J.L., Geoghagen N.S.M., Weidman J.F., Fuhrmann J.L., Nguyen D.,

Utterback T.R., Kelley J.M., Peterson J.D., Sadow P.W., Hanna M.C.,

Cotton M.D., Roberts K.M., Hurst M.A., Kaine B.P., Borodovsky M.,

Klenk H.-P., Fraser C.M., Smith H.O., Woese C.R., Venter J.C.;

"Complete genome sequence of the methanogenic archaeon, Methanococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LE24_METJA
Q58673;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15-JUL-1998 (Rel. 36, Created)
15-JUL-1998 (Rel. 36, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Putative 3-isopropylmalate dehydratase small subunit (EC 4.2.1.33)
(Isopropylmalate isomerase) (Alpha-IPM isomerase) (IPMI).
MJ1277.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           _METJA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Interpro; IPR000573; Aconitase_C.
Pfam; PF00694; Aconitase_C; 1.
Leucine biosynthesis; Lyase; Complete proteome.
SEQUENCE 168 AA; 18377 MW; A53C2CA883B6CCD7 CRC64;
                                                                                                           METTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     jannaschii.";
Science 273:1058-1073(1996).
-:- CATALYTIC ACTIVITY: 3-ISOPROPYLMALATE = 2
H(2)O (ALSO CATALYSES 2-ISOPROPYLMALEATE
4-METHYL-3-CARBOXYPENTANONE).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Archaea; Euryarchaeota; Methanococci; Methanococcales; Methanocaldococcaceae; Methanocaldococcus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=2190;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Methanococcus jannaschii.
                                                                                                                                                                                              107
                                                                                                                                                                                                                                      185
                                                                                                                                                                                                                                                                                                                       125
                                                                                                                                                                                                                                                                                                                                                                                                   65 AVFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGE 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local
                                                                                                                                                                                                                                                                                                                                                               ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PATHWAY: Leucine biosynthesis; second step.
SUBUNIT: CONSISTS OF TWO DIFFERENT SUBUNITS (POTENTIAL).
                                                                                                                                                                                                                                      DVGAWKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGDAGP-----VIEAGGIFAYARK
                                                                                                                                                                                            CKGISEKVNEGDELEVNLETGEIKNLTTGEVLK---
                                                                                                                                                                                                                                                                                                                                                           ESSRYATIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     U67568; ААВ99283.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                            IIVGGKNFGCGSSREHAPLGLKGAGISCVIAESFARIFYRNAINVG--LPL-IE
      (Rel.
(Rel.
(Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                       STANDARD;
36, Created)36, Last sequence update)41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21.1%; 38.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                29;
                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 267.5;
Pred. No. 4e-1
29; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     168
                                                                                       170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4e-15;
                                                                                     AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     æ
                                                                                                                                                                                            -GQKLPEFMMEILEAGGLMPYLKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2-ISOPROPYLMALEATE +
E + H(2)O = 3-HYDROXY-
                                                                                                                                                                                                                                                                                                                                                                                                                                              57;
                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                              25;
                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                    239
                                                                                                                                                                                                                                                                                                                     184
                                                                                                                                                                                                                                                                                                                                                             55
                                                                                                                                                                                            162
                                                                                                                                                                                                                                                                            106
                                                                                                                                                                                                                                                                                                                                                                                                                                              9
  RESULT
LE24_MI
ID
AC
OC
DT
11

                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                           Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                            METTH
                                                                                                                                                                                                                                    027440;
                                                                                                                                                                                                                                                                                                                                                             108
                                                                                                                                                                                                                                                                                                                                                                                                     185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        125
                                                                                                                                                                                                                                                                                                   σ
                                                                                                                                                                                                                                                                                                                                                                                                                                              56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         66
```

```
Smith D.R., Doucette-Stamm L.A., Deloughery C., Lee H.-M., Dubois Aldredge T., Bashizadeh R., Blakely D., Cook R., Gilbert K., Harrison D., Hoang L., Keagle P., Lumm W., Pothier B., Qiu D., Spadafora R., Vicare R., Wang Y., Wierzbowski J., Gibson R., Spadafora R., Vicare R., Wang Y., Wierzbowski J., Gibson R., Jiwani N., Caruso A., Bush D., Safer H., Patwell D., Prabhakar S., McDougall S., Shimer G., Goyal A., Pietrovski S., Church G.M., Daniels C.J., Mao J.-I., Rice P., Noelling J., Reeve J.N.; Daniels C.J., Mao J.-I., Rice P., Noelling J., Reeve J.N.; "Complete genome sequence of Methanobacterium thermoautotrophicum deltaH: functional analysis and comparative genomics."; J. Bacteriol. 179;7135-7155(1997).
                                                                                                     15-JUL-1998 (Rel. 36, Created)
15-JUL-1998 (Rel. 36, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Putative 3-isopropylmalate dehydratase small subunit (EC 4.2.1.
(Isopropylmalate isomerase) (Alpha-IPM isomerase) (IPMI).
MTH1387.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pfam; PF00694; Aconitase_C; 1.
Leucine biosynthesis; Lyase; Complete proteome.
SEQUENCE 170 AA; 18651 MW; BC07146AF7585215 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; AE000860; AAB85327.1; -. InterPro; IPR000573; Aconitase_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=98037514;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Methanobacterium thermoautotrophicum.
Archaea; Euryarchaeota; Methanobacter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Putative 3-isopropylmalate dehydratase (Isopropylmalate isomerase) (Alpha-IPM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=187420;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Methanobacteriaceae;
Methanobacteriaceae;
                                   Archaea; Euryarchaeota;
                                                                  Methanobacterium thermoautotrophicum.
                                                                                                                                                                                                                                                                                                                                                                   LE24_METTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4 IIRGRVWRFGDNVDTDMIIPGRYL----RTFSLDELASHVMEGARPEFASQ---VRKGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PATHWAY: Leucine biosynthesis; second step.
SUBUNIT: CONSISTS OF TWO DIFFERENT SUBUNITS (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4-METHYL-3-CARBOXYPENTANONE).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KVDA----DDGDEVSIDLRSGQIRNLTAGSEYRMKPFNDYMLSILEDGGLVNHYLKT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DVGAWKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGD-AGPVIEAGGIFAYARKT 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ESSRYAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELT 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGL-PSAAYPTPFVAPGE 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----IIVAGRNFGCGSSREQAPVALKHAGVVAIIAESFARIFYRNAINIG--LPVIMA 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PubMed=9371463;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Methanothermobacter
   Methanothermobacter
                                   Methanobacteria; Methanobacteriales,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Methanobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 266; DB 1;
Pred. No. 5.4e-15;
                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                   162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                small subunit (EC 4.2.1.33)
isomerase) (IPMI).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Methanobacteriales;
                                                                                                                                                                                                                                                                                                                                                                   AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 170;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ۲.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            55
```

```
RESULTI
LE 23_ML
ID LE 23_LL
LE 24_LL
L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                  Q58667;
Q58667;
Q58667;
15-JUL-1998 (Rel. 36, Created)
15-JUL-1998 (Rel. 36, Last sequence update)
15-JUL-1998 (Rel. 41, Last annotation update)
15-JUN-2002 (Rel. 41, Last annotation update)
Putative 3-isopropylmalate dehydratase small subunit (EC /
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Smith D. R., Doucette-Stamm L.A., Deloughery C., Lee H.-M., Dubois Aldredge T., Bashirzadeh R., Blakely D., Cook R., Gilbert K., Harrison D., Hoang L., Keagle P., Lumm W., Pothier B., Qiu D., Spadafora R., Vicare R., Wang Y., Wierzbowski J., Gibson R., Spadafora R., Vicare R., Wang Y., Wierzbowski J., Gibson R., Spadafora R., Vicare R., Wang Y., Wierzbowski J., Gibson R., McDougall S., Shimer G., Goyal A., Pietrovski S., Church G.M., McDougall S., Shimer G., Goyal A., Pietrovski S., Church G.M., Daniels C.J., Mao J.-I., Rice P., Noelling J., Reeve J.N.; "Complete genome sequence of Methanobacterium thermoautotrophicum deltaH: functional analysis and comparative genomics."; J. Bacteriol. 179,7135-7155(1997).

J. Bacteriol. 179,7135-7155(1997).

J. Bacteriol. 179,7135-7155(1997).

J. Bacteriol. 179,7135-7155(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
STRAIN=Delta H;
MEDLINE=98037514; PubMed=9371463;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collab between the Swiss Institute of Bioinformatics and the EMBL outst the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for comentities requires a license agreement (See http://www.isb-sib.ch/an or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR000573; Aconitase_C.
pfam; PF00694; Aconitase_C; 1.
Leucine biosynthesis; Lysse; Complete proteome.
SEQUENCE 162 AA; 17956 MW; FF6978208DE0F5B1 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         METJA
STRAIN-JAL-1 / DSM 2661 / ATCC 43067;
MEDLINE-96337999; PubMed-8688087;
Bult C.J., White O., Olsen G.J., Zhou L., Fleischmann R.D.,
Sutton G.G., Blake J.A., FitzGerald L.M., Clayton R.A., Gooayne J.D.,
Starlavage A.R., Dougherty B.A., Tomb J.-F., Adams M.D., Reich C.I.,
Overbeek R., Kirkness E.F., Weinstock K.G., Merrick J.M., Glodek A.,
Scott J.L., Geoghagen N.S.M., Weidman J.F., Fuhrmann J.L., Nguyen D.
                                                                                                                                                                                                                                                                                                              Archaea; Euryarchaeota; Methanocaldococcaceae; N
                                                                                                                                                                                                                      SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LE23_METJA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PATHWAY: Leucine biosynthesis; second step.
SUBUNIT: CONSISTS OF TWO DIFFERENT SUBUNITS (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4-METHYL-3-CARBOXYPENTANONE)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TEKLNEGDEIEVDLDRGVIIR--GDDEFPFKKLPDFMVEILEKGGLIPYLKKKG 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGEESSR 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGD-AGPVIEAGGIFAYARKTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      --FIVAGKNFGCGSSREHAPLALKGAGIAAVIAESFARIFYRNAINVG--IPL-LEAPGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             YAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GKVWKFPDDVDTDIIIPGRYLVM-----RDPEKLREHVMEGL-DPEFPSK-VKPGD----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AE000901; AAB85864.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             66;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                      N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19.9%;
                                                                                                                                                                                                                                                                                                                 Methanocaldococcus
                                                                                                                                                                                                                                                                                                                                                 Methanococci; Methanococcales,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 252.5; DB 1
Pred. No. 6.4e-14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  moved. Usage by and for commercial (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             63;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 162;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4.2.1.33)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    outstation
                                                                                                    J.D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ٦.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
```

```
LE24_ARCEU

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SQ DRR DRR CCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LE24_ARCFU
028513;
15-JUL-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Science 273:1058-1073(1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Utterback T.R., Kelley J.M., Peterson J.D., Sadow Cotton M.D., Roberts K.M., Hurst M.A., Kalne B.P., Klenk H.-P., Fraser C.M., Smith H.O., Woese C.R.,
                                                                                                                                                                                                                                                                                                                                                                                                  15-JUL-1998 (Rel. 36, Created)
15-JUL-1998 (Rel. 36, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Putative 3-1sopropylmalate dehydratase small s
(Isopropylmalate isomerase) (Alpha-IPM isomera
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; U67568; AAB99277.1; -. HSSP; P16276; 7ACN. TIGR; MJ1271; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                jannaschii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "Complete genome sequence of the methanogenic archaeon, Methanococcus lannaschil.":
     Klenk H.-P., Clayton R.A., Tomb J.-F., White O., Nelson K.E., Ketchum K.A., Dodson R.J., Gwinn M., Hickey E.K., Peterson J.D., Richardson D.L., Kerlavage A.R., Graham D.E., Kyrpides N.C., Fleischmann R.D., Quackenbush J., Lee N.H., Sutton G.G., Gill S., Kirkness E.F., Dougherty B.A., McKenney K., Adams M.D., Loftus B. Peterson S., Reich C.I., McNeil L.K., Badger J.H., Glodek A., Zho
                                                                                                                                                           STRAIN=VC-16 / DSM 4304 / ATCC 49558;
MEDLINE=98049343; PubMed=9389475;
                                                                                                                                                                                                                                                                                                                           Archaeoglobus fulgidus.
Archaea; Euryarchaeota; Archaeoglobi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Piam;
                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                      NCBI_TaxID=2234;
                                                                                                                                                                                                                                                                                                     Archaeoglobaceae;
                                                                                                                                                                                                                                                                                                                                                                                    AF1761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Leucine biosynthesis; Lyase;
SEQUENCE 170 AA; 18665 MW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                [nterPro; IPR000573; Aconitase_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 H(2)O (ALSO CATALYSES 2-ISOPROPYLMALEATE + H(2)O = 3-HYDROXY-4-METHYL-3-CARBOXYPENTANONE).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PATHWAY: Leucine biosynthesis; second step. SUBUNIT: CONSISTS OF TWO DIFFERENT SUBUNITS (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VGAWKECKTGDVVTVDLANSVFINHTSGKEYKLK-PIGDAGPVIEAGGIFAYARKTGMIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IIKGRAHKFGDDVDTDAIIPGPYLRTT----DPY-ELASHCMAGI-DENFPKK-VKEGD-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGEE 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SWISS-PROT entry is copyright. It is produced through a collaboration en the Swiss Institute of Bioinformatics and the EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----EIKDGDIVEIDLDKEEIVITNKNKTIKCETPKGLEREILAAGGLVNYLKKRKLIQ 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SSRYATIVGGANFGCGSSREHAPVALGAAGARATVAEGYARIFFRNSVATGEVYPLELTD 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PF00694; Aconitase_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
                                                                                                                                                                                                                                                                                                     Archaeoglobus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18665 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19.8%;
35.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;
'C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1.
3; Complete proteome.
4W; 58146C478777ECB7 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 250.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           165
                                                                                                                                                                                                                                                                                                                                 Archaeoglobales;
                                                                                                                                                                                                                                                                                                                                                                                                                small subunit (EC 4.2.1.33) isomerase) (IPMI).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9.9e-14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sadow P.W.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  P., Borodovsky M.,
, Venter J.C.;
chaeon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             244
```

```
LEUD_PYRHO
LEUD_PA
AC OSSA393
AC OSSA393
DT 30-MAY
DT 15-UN
DE PUTATI
DE (ISOPT
GN PH1724
OS PYTOCO
OC ATChae
OC PYTOCO
OC NCBL_T
RN [1]
RP SEQUEN
RC STRAIN
RX MEDLIN
RX KAWAITA
RA YAMAMO
RA SAKAI
RA YAMAMO
RA SAKAI
RA AKAI
RA TUMAMO
RT CHORDO
RT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
Matches 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Overbeek R., Gocayne J.D., Weidman J.F., McDonald L., Utterba Cotton M.D., Spriggs T., Artiach P., Kaine B.P., Sykes S.M., Sadow P.W., D'Andrea K.P., Bowman C., Fujii C., Garland S.A., Mason T.M., Olsen G.J., Fraser C.M., Smith H.O., Woese C.R., Venter J.C.;
                                                                             MEDLINE-98344137; PubMed-9679194;
Kawarabayasi Y., Sawada M., Horikawa H., Haikawa Y., Hino Y.,
Yamamoto S., Sekine M., Baba S.-I., Kosugi H., Hosoyama A., Nagai Y.,
Yamamoto S., Sekine M., Baba S.-I., Kosugi H., Hosoyama A., Nagai Y.,
Sakai M., Ogura K., Otsuka R., Nakazawa H., Takamiya M., Ohfuku Y.,
Sakai M., Ogura K., Otsuka R., Nakazawa J., Kushida N., Oguchi A.,
Funahashi T., Tanaka T., Kudomira Y., Robb F.T., Horikoshi K.,
Aoki K.-I., Yoshizawa T., Nakamura Y., Robb F.T., Horikoshi K.,
Masuchi Y., Shizuya H., Kikuchi H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     30-MAY-2000 (Rel. 39, Created)
30-MAY-2000 (Rel. 39, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Putative 3-isopropylmalate dehydratase small;
(Isopropylmalate isomerase) (Alpha-IPM isomer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LEUD_PYRHO O59393;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; irrovovo, 1
Pfam; PF00694; Aconitase_C; 1.
Leucline biosynthesis; Lyase; Complete proteome.
Leucline biosynthesis; Lyase; Complete proteome.
"Complete sequence and gene organization of the genome of thermophilic archaebacterium, Pyrococcus horikoshii OT3.", DNA Res. 5:55-76(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (Isopropylmalate PH1724.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIGR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               reducing archaeon Archaeoglobus Nature 390:364-370(1997).
                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=53953;
                                                                                                                                                                                                                                                                                                                                                                                                                                          Archaea; Euryarchaeota; Thermococci;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pyrococcus horikoshii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR000573;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "The complete genome sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   send
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PATHWAY: Leucine biosynthesis; secon SUBUNIT: CONSISTS OF TWO DIFFERENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CATALYTIC ACTIVITY: 3-ISOPROPYLMALATE = 2-I
H(2)O (ALSO CATALYSES 2-ISOPROPYLMALEATE +
4-METHYL-3-CARBOXYPENTANONE).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          YAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVGA 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GRAWKFGDDISTDHITPGRYYHLRSNMPELAKHVMEDADPDFMKKFRPGDF----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGEESSR 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ---IDSGDELEVDLGKGLVVNRTKGIEIRVKPIPEVMLKILHEGGLVSYVKKHGDI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGDAG-PVIEAGGIFAYARKTGMI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AE000981; AAB89489.1; -. AF1761; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -IVAGKNEGMGSSREHAPLALKIAGVSAVIAKSFARIFYRNAINVG--LPVLIADTDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity 34.
60; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 249; DB 1;
Pred. No. 1.3e-13;
0; Mismatches 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        of the hyperthermophilic, sulphate.us fulgidus.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  second
                                                                                                                                                                                                                                                                                                                                                                                                                                             Thermococcales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           small subunit (EC
isomerase) (IPMI)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUBUNITS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2-ISOPROPYLMALEATE
E + H(2)O = 3-HYDROI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 165;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sykes S.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                             Thermococcaceae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3-HYDROXY-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4.2.1
                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18;
                                                        hyper
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4;
```

```
RESULT
LEUD_LA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                        J.
                                                                                                                                                                                                                                                                                                               Q02144;
01-JUL-1993
01-JUL-1993
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                             LT 10
LACLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; AFTURE TERRO0573; Aconitase_C.

InterPro; IPR000573; Aconitase_C; 1.

Pfam; PF00694; Aconitase_C; 1.

Pfam; PF00694; Aconitase_C; Complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced between the Swiss Institute of Bioinformatics and the European Bioinformatics Institute. There are use by non-profit institutions as long as its a modified and this statement is not removed. Usage
            lactis ssp. lactis IL1403.";
Genome Res. 11:731-753(2001)
-!- CATALYTIC ACTIVITY: 3-IS
                                                                                                                                                        STRAIN-NCDO 2118;
STRAIN-NCDO 2118;
MEDLINE=93015710; PubMed=1400210;
Godon J.-J., Chopin M.-C., Ehrlic
"Branched-chain amino acid biosyn
                                                                                                                                                                                                                                                                                                  01-JUL-1993 (Rel. 26, Created)
01-JUL-1993 (Rel. 26, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
3-isopropylmalate dehydratase small subunit (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         entities requires a license agreement (See http://www.isb-sib.ch/announce) or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            - -
                                                Bolotin A., Wincker P., Mauger S., Jaillon Weissenbach J., Ehrlich S.D., Sorokin A.; "The complete genome sequence of the lactic
                                                                                                                                                                                                   SEQUENCE FROM N.A. STRAIN-NCDO 2118;
                                                                                                                                                                                                                                                  Lactococcus lactis (subsp. lactis) (St. Bacteria; Firmicutes; Lactobacillales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; AP000007; BAA30838.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -
                                                                                                   STRAIN-IL1403;
                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                    subsp.
                                                                                                                                                                                                                                                                            (Isopropylmalate isomerase)
LEUD OR LL1221.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                     MEDLINE=21235186; PubMed=11337471;
                                                                                                                                                                                                                                       NCBI_TaxID=1360;
                                                                                                                                                                                                                                                                                                                                                                   LEUD_LACLA
                                                                                                                                                                                                                                                                                                                                                                                                                                 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                        240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   σ
                                                                                                                                        Bacteriol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PATHWAY: Leucine biosynthesis; second step. SUBUNIT: CONSISTS OF TWO DIFFERENT SUBUNITS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CATALYTIC ACTIVITY: 3-ISOPROPYLMALATE = 2
H(2)O (ALSO CATALYSES 2-ISOPROPYLMALEATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4-METHYL-3-CARBOXYPENTANONE).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GECFYVGDNIDTDQIIPAEH-LTLVPSKPDEYRKLGSFAFAGL-PSAAYPTPFVAPGEES
                                                                                                                                                                                                                                                                                                                                                                                                                                RG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GKVWKFGDDISTDEITPGRYNLTKDP-----KELAKIAFIEVRPDFARN---VRPGD--
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ΤG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GKTEGLKDGDLVTV---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAWKECKTGDVVTVDLANSVFINHTSGKEYK-----LKPIGD-AGPVIEAGGIFAYARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SRYAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----VVVAGKNFGIGSSRESAALALKALGIAGVIAESFGRIFYRNAINIG---IPLLL---
                                                                                                                                                    lactis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  63; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   biosynthesis; Lyase;
E 163 AA; 18011 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        241
(ALSO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AA;
                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18011 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            16.0%;
 3-ISOPROPYLMALATE = :
ES 2-ISOPROPYLMALEATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -NWETGEVRKGDEILMFEPLEDFLLEIVREGGILEYIRR
                                                                                                                                                               Ehrlich S.D. biosynthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   27;
                                                                                                                                                                                                                                                                                        (Alpha-IPM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pred. No. 7.86
7; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 202.5;
Pred. No. 7.8
                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AEFBDDE1CBCDD266 CRC64;
                                                                                                                                                                        S
                                                                                                                                                                                                                                                                (Streptococcus lactis).
                                                 n A.;
lactic
                                                                                                                                                                             .
D.;
                                                                                                                                                                                                                                                                                                                                                                     191
                                                                                                                                                                                                                                                    Streptococcaceae;
                                                                                                                                                                                                                                                                                          isomerase)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              There are no rest
                                                                                                                                                                genes
                                                                                                                                                                                                                                                                                                                                                                     Å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8e-10;
                                                                         0.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2-ISOPROPYLMALEATE +
E + H(2)0 = 3-HYDROXY-
2-ISOPROPYLMALEATE

2 + H(2)0 = 3-HYDROX
                                                  acid
                                                                                                                                                                                                                                                                                                      (EC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   55;
                                                                                                                                                                ij
                                                                          Malarme
                                                                                                                                                                                                                                                                                                      4.2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL).
                                                                                                                                                                Lactococcus lactis
                                                  bacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                        (IPMI).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            through a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bу
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL outstation
                                                                                                                                                                                                                                                      Lactococcus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  37;
                                                  Lactococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          collaboration
- outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10;
```

CATALYSES

```
LEUDANA
LEUDANA
LEUDANA
LEUDANA
LEUDANA
LEUDANA
DE GOO
DE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
Matches 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam, PF00694; Aconitase_C; 1.
TIGRFAMS; TIGR00171; leuD; 1.
Leucine biosynthesis; Lyase; Complete proteome.
SEQUENCE 191 AA; 21849 MW; C691BC6AAEF4E964 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; U92974; AAB81916.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR000573; Aconitase_C.
                                                                                                                                                                                                auxotrophs.";
                                                                                                                                                                                                                               of Azotobacter vinelandii:
                                                                                                                                                                                                                                                    Manna A.C., Das H.K.; "Characterization and
                                                                                                                                                                                                                                                                                                     MEDLINE=97261869; PubMed=9108283;
                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Azotobacter vinelandii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3-isopropylmalate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         P96196;
                                                                                                                                                                                                                                                                                                                                                                                                                                    Azotobacter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LEUD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (Isopropylmalate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-NOV-1997 (Rel.
15-JUN-2002 (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EUD_AZOVI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PATHWAY: Leucine biosynthesis; second step. SUBUNIT: CONSISTS OF TWO DIFFERENT SUBUNITS: LEUC AND LEUD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4-METHYL-3-CARBOXYPENTANONE).
                                                 SUBUNIT: CONSISTS OF TWO DIFFERENT SUBUNITS: LEUC AND LEUD.
                                                                                                                          CATALYTIC ACTIVITY: 3-ISOPROPYLMALATE = 2-ISOPROPYLMALEATE + H(2)O (ALSO CATALYSES 2-ISOPROPYLMALEATE + H(2)O = 3-HYDROXY
                                                                                                                                                      CATALYTIC ACTIVITY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; AE006354; AAK05319.1;
S35135; S35135.
                                                                                                4-METHYL-3-CARBOXYPENTANONE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GSSSPSSAVFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LDDIGITLQYEEAISAYEQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -GDAGPVIE-AGGIFAYARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LLPIKQPREVLNQLTKLSSQEE----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VYPL-----ELTDVGAWKECKTGDVVTVDLANSVFINHTSGKEYKLKPI----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DFILNAPKYKKASLLISGDNFGSGSSREHAAWALSDYGFRAITAGSYSDIFYNNALKNG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PFVAPGEESSRYAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTSVP
     SWISS-PROT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IPR004431; LeuD
                                                                                                                                                                             Genet. 254:207-217(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                           Leucine biosynthesis; second step
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STANDARD;
entry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    isomerase)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         35, Created)
35, Last sequence update)
41, Last annotation update)
dehydratase small subunit (EC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VMNDNIDTDQIIPKQFLKAIDKK--GFGKNLFYEWRYLKDYDENP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15.1%;
29.0%;
                                                                                                                                                                                                                            mutagenesis of the leucine biosynthetic ndii: an analysis of the rarity of amino
  ŝ
copyright.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              239
                                                                                                                                                                                                                                                                                                                                                                                                                                                         gamma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 191.5;
Pred. No. 7.3e
35; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (Alpha-IPM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         subdivision; Pseudomonadaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -ITIDLPHQLIITSLGDFHFEIDPIWKDKLING
     Ιţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        215
     is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       isomerase)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .3e-09;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ĄĄ
     produced
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4.2.1.33)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
       through
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    191;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  37;
       Ø
       collaboration
                                                                                                                                                                                                                               genes
acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7;
```

```
Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    between the Swiss Institute of Bioinformatics and the EMBL outst the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for content is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                               01-NOY-1990 (Rel. 16, Created)
01-OCT-1996 (Rel. 34, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
3-isopropylmalate dehydratase (EC 4.2.1.33) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             _PHYBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TIGRFAMS; TIGRO0171; leuD; 1.
Leucine biosynthesis; Lyase.
SEQUENCE 215 AA; 24133 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; Y11280; CAA72150.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro;
                                     Unpublished observations (MAR-1996).
1 FUNCTION: Catalyzes the isomerization between 2-isopropylmalate
and 3-isopropylmalate, via the formation of 2-isopropylmaleate.
-:- CATALYTIC ACTIVITY: 3-isopropylmalate = 2-isopropylmaleate +
                                                                                                                                                                                                                                                                                               STRAIN=NRRL 1555;
MEDLINE=90356419; PubMed=2388845;
Iturriaga E.A., Diaz-Minguez J.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro;
                                                                                            Gibson
                                                                                                                                                                                                                                                                                                                                                                                                         Phycomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LEU2_PHYBL
            -
                                                                                                                                   Curr. Genet.
                                                                                                                                                "Heterologous transformation of Mucor Phycomyces blakesleeanus leul gene.";
                                                                                                                                                                          Eslava A.P.;
                                                                                                                                                                                       Iturriaga E.A.,
                                                                                                                                                                                                    MEDLINE=92224296; PubMed=1563047;
                                                                                                                                                                                                                  STRAIN-NRRL
                                                                                                                                                                                                                                SEQUENCE FROM
                                                                                                                                                                                                                                                       Nucleic Acids
                                                                                                                                                                                                                                                                       "Nucleotide sequence of the Phycomyces blakesleeanus
                                                                                                                                                                                                                                                                                  Eslava A.P.;
                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=4837;
                                                                                                                                                                                                                                                                                                                                                                              Phycomyces
                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota;
                                                                                                                                                                                                                                                                                                                                                                                                                        LEU1.
                                                                                                                                                                                                                                                                                                                                                                                                                                    isomerase)
                                                                                                         IDENTIFICATION OF PROBABLE FRAMESHIFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 136 DELFRQCESTEGYRLTVDLAAQT-VTRPDGKALSFEIDP 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   77
            H(2)O.
CATALYTIC ACTIVITY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NIDTDQIIPAEHLTLV-----PSKPDEYRKLGSFAFAGLPSAAYP--TPFVAPGEESSR 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           YAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVGA 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ASYLLARENFGCGSSREHAPWALDEYGFRTVIAPSFADIFFNNSFKNG-LLPIILPEAEV 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NVDTDQIIPKQFLKSIKRTGFGPNLFDEWRYL-DVGQPGQDCSARPLNTGFVLNLPRYQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pro; IPR004431; LeuD. PF00694; Aconitase_C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               56;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -WKECKT-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                       FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IPR000573; Aconitase_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                    (Alpha-IPM isomerase) (IPMI).
                                                                                                                                                                                                                                                                                                                                                                                            Fungi;
                                                                                                                                                                                                                                                                                                                                                                                                            blakesleeanus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                   21:215-223(1992)
                                                                                                                                                                                                                                                          Res.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -GDVVTVDLANSVFINHTSGK--EYKLKP
                                                                                                                                                                                        Diaz-Minguez
                                                                                                                                                                                                                                                                                                                                                                                              Zygomycota;
                                                                                                                                                                                                                                                          18:4612-4612(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14.9%;
            2-isopropylmaleate
                                                                               (MAR-1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 189; DB
Pred. No. 1.3e
26; Mismatches
                                                                                                                                                                                        л.
м.,
                                                                                                                                                                                                                                                                                                                                                                                            Zygomycetes; Mucorales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8E7CC713228005B8 CRC64;
                                                                                                                                                                                        Benito E.P.,
                                                                                                                                                                                                                                                                                                   Benito E.P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   744
                                                                                                                                                              circinelloides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .3e-08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ΑA
               + H(2)0 =
                                                                                                                                                                                                                                                                                                                                                                                                                                                  (Isopropylmalate
                                                                                                                                                                                                                                                                                                   Alvarez M.I.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                          Alvarez
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                          leul gene.";
                                                                                                                                                                                           Z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
```

```
RESULT 13
LEUZ-
LEUZ-
LEUZ-
AC 01428
DT 15-U
DT 15-U
DT 15-U
DT 15-U
DT 15-U
DT SPACS
OC SChiz
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              γQ
                                                                                                                                                                                                                                                                                                                                                                                                            몺
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR000573; Aconitase_C.
InterPro; IPR001030; Aconitase_N.
InterPro; IPR004430; LeuC.
InterPro; IPR004431; LeuC.
InterPro; IPR004431; LeuC.
Pfam; PP00330; aconitase; 1.
Pfam; PP00694; Aconitase_C; 1.
PRINTS; PR00415; ACONITASE.
PRODOM; PD000511; Aconitase_N; 1.
TIGRFAMS; TIGR00170; leuC; 1.
TIGRFAMS; TIGR00171; leuD; 1.
                                                                                                                                                                                              LEU2_SCHPO STANDARD; PRI; /38 MA.

014289;
15-JUL-1998 (Rel. 36, Created)
15-JUL-1998 (Rel. 36, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
3-isopropylmalate dehydratase (EC 4.2.1.33) (Isopropylmalate isomerase) (Alpha-IPM isomerase) (IPMI).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collaboratic between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on it use by non-profit institutions as long as its content is in no was modified and this statement is not removed. Usage by and for commercial
MEDLINE=21848401; PubMed=11859360; Wood V., Gwilliam R., Rajandream M.A., Sgouros J., Peat N., Hayles J., Baker
                                                                                                                                                           Schizosaccharomyces pombe (Fission yeast). Eukaryota; Fungi; Ascomycota; Schizosaccha
                                                                                                                                                                                                                                                                                                                                       SCHPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             METAL
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROSITE; PS00450; ACONITASE_1; 1. PROSITE; PS01244; ACONITASE_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PIR; S10998; S10998
PIR; S26864; S26864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; X53090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      entities requires a license agreement (See http://www.isb-sib.ch/announce/
or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -!- PATHWAY: Leucine bic
-!- SUBUNIT: Monomer.
-!- SIMILARITY: BELONGS
                                                                                                                         Schizosaccharomyces.
                                                                                                                                          Schizosaccharomycetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                            611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                552 GLGSALFYGLRYDPATGAEKPDFVLNQPAYRSSK-ILVCTGPNFGCGSSREHAPWAFNDF 610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  101
                                                                                                                                                                                                                                                                                                                                                                                                                                            155 GARAIVAEGYARIFFRNSVATGEVYPLELT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     42 CRRAGSIVPAAAAAAAGSSSPSSAVFHGECFVVG-DNIDTDQIIPAEHLTLVPSKPDEYR 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SIMILARITY: BELONGS TO THE ACONITASE/IPM ISOMERASE FAMILY. CAUTION: Ref.1 and Ref.2 sequences differ from that shown frameshift in position 676.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KLGSFAFAGL---PSAAYPTP-FV--APGEESSRYAIIVGGANFGCGSSREHAPVALGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CPPAGS -- PVNKGAPVASAMPAFTTLKGVAAPLAISNVDTDMIIPKQFL ---- KTIKRT
                                                                                                                                                                                                                                                                                                                                                                                                            GIRCIIATSFADIFFNNCFKNG-MLPIILS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity 57; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              biosynthesis; Lyase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Leucine biosynthesis; second step.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAA37257.1; ALT_FRAME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            80833 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14.5%;
                                                                                                                                          Schizosaccharomycetaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        :: Iron-sulfur; 4Fe-4S.
IRON-SULFUR (4FE-4S)
IRON-SULFUR (4FE-4S)
IRON-SULFUR (4FE-4S)
IRON-SULFUR (4FE-4S) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 184; DB 1;
Pred. No. 1.4e-07;
                                                                                                                                                               Schizosaccharomycetes
m M.A., Lyne M., Baker S., Basham
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    No.
                                                                                                                                                                                                                                                                                                                                                                                                                                            184
                                                                                                                                                                                                                                                                                                                                                                                                            639
 Lyne
m D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 744;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (BY
(BY)
   R., Ste
Bowman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Y SIMILARITY).
Y SIMILARITY).
Y SIMILARITY).
                  Stewart
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             due
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
```

```
RA Brooks K., Brown D., Brown S., Chillingworth T., Churcher C.M.,
RA Collins M., Connor R., Cronin A., Davis P., Feltwell T., Fraser A.,
RA Gentles S., Goble A., Hamlin N., Harris D., Hidalgo J., Hodgson G.,
RA Holroyd S., Hornsby T., Howarth S., Huckle E.J., Hunt S., Jagels K.,
RA James K., Jones M., Leather S., McDonald S., McLean J.,
RA Mooney P., Moule S., Mungall K., Murphy L., Niblett D., Odell C.,
RA Mooney P., Moule S., Mungall K., Murphy L., Niblett D., Odell C.,
RA Skelton J., Simmonds M., Squares R., Squares S., Stevens K.,
RA Rutherford K., Rutter S., Saunders D., Seeger K., Sharp S.,
RA Skelton J., Simmonds M., Squares R., Squares S., Stevens K.,
RA Taylor K., Taylor R.G., Tivey A., Walsh S.V., Warren T., Whitehead S.,
RA Weltjens I., Vonstreels E., Rieger M., Schaefer M., Mueller-Auer S.,
RA Weltjens I., Vanstreels E., Rieger M., Schaefer M., Mueller-Auer S.,
RA Borzym K., Langer I., Beck A., Lehrach H., Reinhardt R., Pohl T.M.,
RA Eger P., Zimmermann W., Wedler H., Wambutt R., Purnelle B.,
RA Galbert F., Aves S.J., Xiang Z., Hunt C., Moore K., Hurst S.M.,
RA Lucas M., Rochet M., Gaillardin C., Tallada V.A., Garzon A., Thode G.,
RA Daga R.R., Cruzado L., Jimenez J., Sanchez M., del Rey F., Benito J.,
RA Daga R.R., Cruzado L., Jimenez J., Sanchez M., del Rey F., Benito J.,
RA Shakovski G.V., Ussery D., Barrell B.G., Nurse P.,
RA Shakovski G.V., Ussery D., Barrell B.G., Nurse P.,
RA Shakovski G.V., Ussery D., Barrell B.G., Nurse P.,
Ra Shakovski G.V., Ussery D., Barrell B.G., Nurse P.,
Ra Shakovski G.V., Ussery D., Barrell B.G., Surson A., Forsburg S.L.,
RA Cerrutti L., Lowe T., McCombie W.R., Paulsen I., Potashkin J.,
RA Shakovski G.V., Ussery D., Barrell B.G., Nurse P.,
Ra Shakovski G.V., Ussery D., Barrell B.G., Surson P.,
Ra C., C., Fill Schollon S., Sanchez M., Schoppylmalate C., Forsburg S. Schoppylmalate, via the formation of 2-isopropylmalate C., C., CATALYTIC ACTIVITY: 3-isopropylmalate = 2-isopropylmalate + C.
                                       Qγ
                                                                                     В
В
                                                                                                                          Qγ
                                                                                                                                                                        Query Match
Best Local S
Matches 60
                                                                                                                                                                                                                                                                                                                                                                                                             InterPro: IPR004431; Leub.
Pfam; PF00330; aconitase; 1.
Pfam; PF00694; Aconitase_C; 1.
PRINTS; PR00415; ACONITASE.
PRIODOM; PD000511; Aconitase_N; 1.
TIGRFAMS; TIGR00170; LeuC; 1.
TIGRFAMS; TIGR00171; leub; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                        METAL
                                                                                                                                                                                                                                                                                                                                             PROSITE; PS00450; ACONITASE_1; 1.
PROSITE; PS01244; ACONITASE_2; 1.
Leucine biosynthesis; Lyase; Iron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; Z99262; CAB16402.1; -. InterPro; IPR000573; Aconitase_C. InterPro; IPR001030; Aconitase_N. InterPro; IPR004430; LeuC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This
                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                     METAL
                                                                                                                                                                                                                                                                                                                               METAL
                                           106
                                                                                                                               53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       isopropylmalate.
PATHWAY: Leucine biosynthesis; second step.
SIMILARITY: BELONGS TO THE ACONITASE/IPM ISOMERASE FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CATALYTIC ACTIVITY: 2-isopropylmaleate + H(2)0 =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SWISS-PROT entry is copyright. It is produced through a collaboration een the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                               AAAAAGSSSPSSAVFHGECFVVG-----DNIDTDQIIPAEHLTLVPSKPDEYRKLGSF
    AF-----YEIRYDADGKEIPDFVLNREPYRHATVLVAHDNFGCGSSREHAPWALNDFG
                                                                                       ATNVAGSVSSGSAGIPKFTVVEGIAAPLPMANVDTDKIIPKQFL-----KTIKRTGLGQF
                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                              758
                                                                                                                                                                                                                                                                                     420
423
                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                              AA;
                                                                                                                                                                                                                                                              420
423
82782
                                                                                                                                                                                                                                                                                                                                 359
                                                                                                                                                                                             14.5%;
                                                                                                                                                                                                                                                              MW;
                                                                                                                                                                           19;
                                                                                                                                                                                                                                                         ;; Iron-sulfur; 4Fe-4S.
IRON-SULFUR (4FE-4S)
IRON-SULFUR (4FE-4S)
IRON-SULFUR (4FE-4S)
IRON-SULFUR (4FE-4S)
                                                                                                                                                                                             Score 183.5; DB 1
Pred. No. 1.6e-07;
                                                                                                                                                                           ed. No. 1.6
Mismatches
                                           --AIIVGGANFGCGSSREHAPVALGAAG
                                                                                                                                                                                                                    DB 1;
                                                                                                                                                                                                                                                                   CRC64;
                                                                                                                                                                                                                                                                                   (BY SIMILARITY).
(BY SIMILARITY).
(BY SIMILARITY).
                                                                                                                                                                           Indels
                                                                                                                                                                                                                Length 758;
                                                                                                                                                                           31;
                                                                                                                                                                           Gaps
                                              155
                                                                                       577
                                                                                                                                                                           6
```

156

ARAIVAEGYARIFFRNSVATGEV-YPLELTDVGAWKECKTGDV-VTVDLANSVFINHTSG

```
ERSULT TO SEE TO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                           Query Match
Best Local
                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-NOV-1997 (Rel.
01-NOV-1997 (Rel.
15-JUN-2002 (Rel.
3-isopropylmalate
                                                                                                                                                                                                                                                                            PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro;
InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RHINI
                                                                                                                                                                                                                                 METAL
                                                                                                                                                                                                                                                                                                                                                                                          Pfam; PF00330; aconitase; 1. Pfam; PF00694; Aconitase_C; 1. PRINTS; PR00415; ACONITASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P55811;
01-NOV-1997
                                                                                                                                                                                        METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAIN=Yamazaki / IFO 4810;
MEDLINE=97056764; PubMed=8901103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=4844;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Fungi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Rhizopus niveus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LEU1.
                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                              METAL
                                                                                                                                                                                                                                                                                                                                                                  ProDom; PD000511; Aconitase_N; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'Cloning
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LEU2_RHINI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Isomerase) (Alpha-IPM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   631
                       50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PATHWAY: Leucine biosynthesis; second step.
SUBUNIT: Monomer (By similarity).
SIMILARITY: BELONGS TO THE ACONITASE/IPM ISOMERASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CATALYTIC ACTIVITY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    isopropylmalate.
PAAAAAAAGSSSPSSAV<del>SHG</del>ECEVVG-DNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFA 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VKFDVEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYKLKP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IRVIIAPSFADIFFNNCFKNGMLPIPTPIEQVNDMMKAAENQVKFSVDLVNQTITYGDKQ 690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           D63833;
                                                                                           Similarity
                                                                                                                                                                                                                                                       biosynthesis;
                                                                                                                                                                                                                                                                            PS00450; ACONITASE_1; PS01244; ACONITASE_2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ., Yanai K., Horiuchi H., Ohta A., Takagi M.; and characterization of the Rhizopus niveus
                                                                                                                                                                                                                                                                                                                          TIGR00170; leuC; 1.
TIGR00171; leuD; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                IPR000573; Aconitase_C.
IPR001030; Aconitase_N.
IPR004430; LeuC.
IPR004431; LeuD.
                                                                                                                                                           353
413
416
750
                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BAA09893
                                                                                                                                                                ΑA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .. 35, Created)
1. 35, Last sequence update)
1. 41, Last annotation update)
te dehydratase (EC 4.2.1.33) (If
ha-IPM isomerase) (IPMI).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Zygomycota; Zygomycetes; Mucorales; Mucoraceae;
                                                                                                                                                              61308
                                                                                           34.5%;
                                                                                                                                                                                                                                                    Lyase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2-isopropylmaleate + H(2)0
                                                                                                                                                                WW;
                                                                                                                                                         Iron-sulfur; 4Fe-4S.
IRON-SULEUR (4FE-4S) (BY SIMILARITY).
IRON-SULEUR (4FE-4S) (BY SIMILARITY).
IRON-SULEUR (4FE-4S) (BY SIMILARITY).
; 7D7BE28304E26AB3 CRC64;
                                                                                           Pred.
                                                                                                                Score
                                                                     Mismatches
                                                                                                                   180;
                                                                                           No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ormatics and the EMBL outst
There are no restrictions
ong as its content is in
                                                                                           3e-07
                                                                                                                   DВ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A
                                                                                                                μ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (Isopropylmalate
                                                                     72;
                                                                                                           Length
                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     leu1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                     20;
                                                                     Gaps
                                                                     8
```

```
RESULUL AND RESULUT AND RESULU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                          RA KULSELF 5, Ogsaswara N., Moszer I., Albertini A.M., Alloni G.,
RA Azevedo V., Bertero M.G., Bessieres P., Bolotin A., Borchert S.,
RA Bourilss R., Boursier L., Brans A., Braun M., Brignell S.C., Bron S.,
RA Bourilst S., Bruschi C.V., Caldwell B., Capuano V., Carter N.M.,
RA Brouillet S., Bruschi C.V., Caldwell B., Capuano V., Carter N.M.,
RA Choi S.K., Codani J.J., Connerton I.F., Cummings N.J., Daniel R.A.,
RA Choi S.K., Codani J.J., Connerton I.F., Cummings N.J., Daniel R.A.,
RA Choi S.K., Codani J.J., Connerton I.F., Cummings N.J., Daniel R.A.,
RA Choi S.K., Codani J.J., Connerton I.F., Cummings N.J., Daniel R.A.,
RA Choi S.K., Codani J.J., Connerton I.F., Cummings N.J., Daniel R.A.,
RA Choi S.K., Codani J.J., Conterton I.F., Cummings N.J., Daniel R.A.,
RA Fritz C., Fujita M., Fujita Y., Fuma S., Galizzi A., Galleron N.,
RA Fritz C., Fujita M., Fujita Y., Fuma S., Galizzi A., Galleron N.,
RA Hilbert H., Holsappel S., Hosono S., Hullo M.F., Itaya M., Jones L.,
RA Guiseppi G., Guy B.J., Haga K., Haiech J., Harvood C.R., Henaut A.,
RA Kunita K., Lapidus A., Lardinois S., Lauber J., Lazarevic V.,
RA Kurita K., Lapidus A., Lardinois S., Lauber J., Lazarevic V.,
RA Kurita K., Lapidus A., Lardinois S., Lauber J., Lazarevic V.,
RA Medina N., Mellado R.P., Mizuno M., Moestl D., Nakai S., Noback M.,
RA Medina N., Mellado R.P., Mizuno M., Moestl D., Nakai S., Noback M.,
RA Parro V., Pohl T.M., Portetelle B., Ropport G., Rey M., Reynolds S.,
RA Rieger M., Rivolta C., Rocha E., Roche B., Rose M., Sadaie Y.,
RA Rieger M., Rivolta C., Rocha E., Roche B., Rose M., Sadaie Y.,
RA Schotin A., Tanakoshi A., Tanaka T., Takahashi H., Takemaru K.,
RA Sato T., Scanlan E., Takaji T., Takahashi H., Takemaru K.,
RA Tosato V., Uchiyama S., Vandenbol M., Vannier F., Vassarotti A.,
RA Viari A., Wambutt R., Wedler E., Wedler H., Weitzenegger T.,
RA Viari A., Wambutt R., Wedler E., Wedler H., Waitzenegger T.,
RA Viari A., Washasha H.F., Zumstein E., Yoshikawa H., Danchin A.;
RT Webert S., Schoos Stilve bacterium Bacillus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDIINE-97124191; PubMed=8969504;
Wipat A., Carter N., Brignell C.S., Guy J.B., Piper K.,
Sanders J., Emmerson P.T., Harwood C.R.;
"The dnaB-pheA (256 degrees-240 degrees) region of the Bacillus subtilis chromosome containing genes responsible for stress responses, the utilization of plant cell walls and primary metabolism.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-NOV-1997
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        P94568;
01-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BACSU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TEUD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-WOV-1997 (Rel. 35, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
3-isopropylmalate dehydratase small subunit (EC 4.2.1.33)
(Isopropylmalate isomerase) (Alpha-IPM isomerase) (IPMI).
   Nature 390:249-256(1997).

-i- CATALYTIC ACTIVITY: 3-ISOPROPYLMALATE = 2-ISOPROPYLMALEATE + H(2)O, (ALSO CATALYSES 2-ISOPROPYLMALEATE + H(2)O = 3-HYDROXY 4-METHYL-3-CARBOXYPENTANONE).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=98044033; PubMed=9384377;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Microbiology 142:3067-3078(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=1423;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bacteria; Firmicutes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LEUD_BACSU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PASDSSSSG-GMPAFTTLKGYAAPLDISNIDTDMIIPKQFL----KTIKRTGLGSALFY
                                                                                                                                                                                   complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FADIFFNNCFKNG-MLPIVLPQAQLEAIAA--EAQKGVEVEVDLVQQIVRN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GL---PSAAYPTPFVAPGEESSRYA--IIVGGANFGCGSSREHAPVALGAAGARAIVAEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SLRFDPQTGAENPAFVLKERTFRQARILVCTGPNFGCGSSREHAPWAFNDFGIRCILAPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (Rel. 35, (Rel. 35,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                               sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bacillales;
                                                                                                                                                                                   Zumstein
ce of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -ELTDVGAWKECKTGDVVTVDLANSVFIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bacillaceae;
                                                                                                                                                                                   E., Yoshikawa H., Danchin
Gram-positive bacterium Ba
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A
                                            3-HYDROXY-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   163
```

```
Query Match
Best Local Similarity
Matches 53; Conserva
                                                                                                                                                                                                                                                                                                        밁
                                δÃ
                                                                         В
                                                                                                             Qγ
                                                                                                                                                    ДЪ
                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -!- PATHWAY: Leucine biosynthesis; second step.
-!- SUBUNIT: CONSISTS OF TWO DIFFERENT SUBUNITS: LEUC AND LEUD.

This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                    EMBL; 275208; CAA99534.1; ..
EMBL; Z99118; CAB14785.1; -.
Subtilist; BG11950; leub.
InterPro; IPR000573; Aconitase_C.
InterPro; IPR004431; Leub.
Pfam; PF00694; Aconitase_C; 1.
TIGRFAMs; TIGR00171; leub; 1.
Leucine biosynthesis; Lyase; Complete proteome.
SEQUENCE 199 AA; 23022 MW; 99ADFE12A0D5D9D3 CRC64;
124 DNWKQL-VGQYENQSLQMTVDLENQL-IHDSEGNQ 156
                                                                       187 GAWKECKTGDV-----VTVDLANSVFINHTSGKE 215
                                                                                                                                                                        77 NIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGEESSRY------ 129
                                                                                                                                                    18 NVDTDQIIPKQFL-----KRIERTGYGRFAF-----FDWRYDANGEPNPEFELNQPVY 65
                                                                                                                                                                                                                           14.1%; Score 178; DB 1; Length 199; milarity 34.2%; Pred. No. 9.7e-08; Conservative 22; Mismatches 48; Indels
                                                                                                                                                                                                                             Indels 32;
                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                             8
```

Search completed: March 31, 2003, 09:08:09 Job time: 26 secs

• •		
		·
		,
		·

```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                  Database :
                                                                                                                                                                                                                                                                          Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                       Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                 Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                         Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Run on:
                                                                                                                                                                                                           SPTREMBL_21:*
1: sp_archea:*
2: sp_bacteria:
3: sp_fungi:*
           5:
6::
7::
7::
10:
112::
113::
114::
115::
                                                                                                                                                                                                                                                                                                                                                                                                     671580 seqs, 206047115 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                   BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            March 31, 2003, 09:05:48; Search time 33 Seconds (without alignments) 1554.719 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-027-450-47
1266
1 MAAALSGTAVSTAALLAPIR.....AGGIFAYARKTGMIASKAAA 249
sp_mhc:*
sp_organelle:*
sp_organelle:*
sp_plant:*
sp_plant:*
sp_virus:*
sp_vrebrate:*
sp_vrebrate:*
sp_unclassified:*
sp_bacteriap:*
sp_archeap:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                       sp_archea:*
sp_bacteria:*
sp_fungi:*
                                                                                                                                                               sp_invertebrate:*
sp_mammal:*
                                                                                                                                                                                            sp_human:*
                                                                                                                                                                                                                                                                                                                                                                          671580
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

16	15	, <sub>+</sub>	1 1	1 1 1	13	11	10	<b>.</b>	۰ م	7	6	U	4	٠ (4	, K	, <u>–</u>	Result No.	
223.5	225.5	227.5	227.5	200.0	) О М	222	NU NU N	20.0	) N ( O . (	) )	260	265.5	627	651	/10.5	990.5	Score	
17.7	17.8	T8.0	10.0		10.2	טע יים	19.9			2 (	20.5	21.0	49.5	51.4	56.L	78.2	Query Match Length	dР
165	166	166	104	100	) F	707	101	, <sub>-</sub>	104	100	163	164	256	253	251	257	Length I	
17	17	16	, _	9 0	; ;	7 -	jσ	; ;	; ;	) (	7	17	10	10	10	10	DB	
Q97VY3	Q8TJM9	Q9WYC8	QBTRF7	CORTLO	001845	Deru/T	CORURI	Q81.X94	090206	NO TECH	097881	Q8U2A0	Q9ZW84	Q9LYT7	Q9ZW85	Q949D1	ID	SUMMARIES
	_	Q9wyc8 thermotoga	Q8trf7 methanosarc	Q9rtiO deinococcus	Q8zw36 pyrobaculum	Q8tu71 methanosarc	_	Q8tx94 methanopyru	Q9uz06 pyrococcus	Malest crostructum	٠,	_	_	-	Q9zw85 arabidopsis	Q949d1 oryza sativ	Description	

## ALIGNMENTS

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            dd
Yo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    β
80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q9ZW85;
01-MAY-1999
01-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAIN-CV. COLUMBIA;

MEDLINE-20083487; PubMed=10617197;

Lin X., Kaul S., Rounsley S.D., Shea T.P., Benito M.-I., Town C.D.,

Fujii C.Y., Mason T.M., Bowman C.L., Barnstead M.E., Feldblyum T.V.,

Buell C.R., Ketchum K.A., Lee J.J., Ronning C.M., Koo H., Moffat K.S.,

Cronin L.A., Shen M., Vanaken S.E., Umayam L., Tallon L.J., Gill J.E.,

Adams M.D., Carrera A.J., Creasy T.H., Goodman H.M., Somerville C.R.,

Copenhaver G.P., Preuss D., Nierman W.C., White O., Eisen J.A.,

Salzberg S.L., Fraser C.M., Venter J.C.;

"Sequence and analysis of chromosome 2 of the plant Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-MAY-1999 (TrEMBLrel. 10, Created)
01-MAY-1999 (TrEMBLrel. 21, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last sanotation update)
3-isopropylmalate dehydratase, small subunit (Putative)
3-isopropylmalate dehydratase small subunit).
AT2643090 OR F14B2.3/AT2643090.
Arabidopsis thaliana (Mouse-ear cress).
Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; endicotyledons; core endicots; Roside eurosids II. Brassicales; Brassicaceae; Arabidopsis.
SEQUENCE FROM N.A.

Yamada K., Banh J., Banno F., Chang E., Dale J.M., Goldsmith A.D., Yamada K., Banh J., Banno F., Chang E., Toriumi M., Wu H.C., Lee J.M., Onodera C.S., Quach H.L., Tang C., Toriumi M., Wu H.C., Yamamura Y., Yu G., Yu S., Bowser L., Carninci P., Chen H., Cheuk R., Hayashizaki Y., Ishida J., Jones T., Kamiya A., Karlin Neumann G., Kawai J., Kim C., Koesema E., Lam B., Lin J., Meyers M.C., Miranda M., Narusaka M., Nguyen M., Palm C.J., Sakurai T., Satou M., Seki M., Shinn P., Southwick A., Tracy S.E., Shinozaki K., Davis R.W., Ecker J.R., Theologis A.;

"Full Length cDNA of gene F14B2.3/At2g43090 (GI:3763918).";
                                                                                                                                                                                                       Yamada K., Liu S.X., Sakano H., Pham P.K., Banh J., Chung M.K., Goldsmith A.D., Lee J.M., Quach H.L., Tang C., Toriumi M., Yu G., Bowser L., Carninci P., Chen H., Cheuk R., Hayashizaki Y., Ishida Jones T., Kamiya A., Karlin Neumann G., Kawai J., Kim C., Koesema Lam B., Lin J., Meyers M.C., Miranda M., Narusaka M., Nguyen M., Palm C.J., Sakurai T., Satou M., Seki M., Shinn P., Southwick A., Shinozaki K., Davis R.W., Ecker J.R., Theologis A.; "Full Length cDNA of gene F14B2.3/At2g43090 (GI:3763918)."; Submitted (MAY-2001) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q9ZW85
                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN-CV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=3702;
                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                       Submitted (MAR-2000) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                         Lin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ν
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GIFAYARKTGMIASKSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GIFAYARKTGMIASKAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SVATGEVYPLELTDVGAWKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGDAGPVIEAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TAAYPTPFVAPGEETTRYAVIIGGANFGCGSSREHAPVALGAAGARAVVAEGYARIFFRN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAAAAAGSSSPSSAVFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAAAAAAGDSTSAGVFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFVGLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SVATGEVYPLELADTGAWKECKTGDVVTVELDNCVMINHTSGKQYKLKPIGDAGPVIEAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  402:761-768(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                             COLUMBIA;
                                                                                                                                                                                                                                                                                                                                                                                    N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Rosidae;
                                                                                                                                                                                                                                                                                                          E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      24C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .
.
.
.
```

ý

```
PRESULT PRESULT ID RESULT ID RESULT PRESULT PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         뭠
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query
Best I
                                                                                                                                                                                                                                                                                                                                                                                                                    Q91YT7 PRELIMINARY; PRT; 253 AA.

Q91YT7;
Q91YT7;
Q91YT7;
Q91YT7;
Q91YT7;
Q1-OCT-2000 (TrEMBLrel. 15, Created)
Q1-OCT-2000 (TrEMBLrel. 15, Last sequence update)
Q1-OCT-2000 (TrEMBLrel. 20, Last annotation update)
3-isopropylmalate dehydratase-like protein (Small subu sisopropylmalate dehydratase small subunit).

F17J16_40 OR AT3G58990.
Arabidopsis thaliana (Mouse-ear cress)
Arabidopsis thaliana (Mouse-ear cress)
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Testaryota; Viridiplantae; Streptophyta; Arabidopsis.

Spermatophyta; Magnollophyta; eudicotyledons; core eud spermatophyta; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Interpro; IPKuvu.
Interpro; IPKuvu.
Pfam; PF00694; Aconi
Pfam; PF00694; Aconi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted (FEB-2002) to the EMBL; AC004450; AAC64298.1; EMBL; AX035158; AAK5962.1; EMBL; AX063029; AAL34203.1; EMBL; AC006224; AAM15163.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Carrera A.J., Creasy T.H.,
Fraser C.M., Venter J.C.;
SEQUENCE FROM N.A.

SEQUENCE FROM N.A.

Yamada K., Banh J., Chang C.H., Chang E., Dale J Yamada K., Onodera C.S., Quach H.L., Tang C., Tor Yamamura Y., Yu G., Yu S., Bowser L., Carroinci F Yamamura Y., Yu G., Yu S., Bowser T., Kamiya A., Kawai J., Kim C., Lam B., Lin J., Meyers M.C., M
                                                                                                                                                                                                                                                                     D'Angelo M., Vezzi A., Rudd S., Lemcke K., Ma Submitted (APR-2000) t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Lin X., Kaul S., Shea T. Barnstead M.E., Mason T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
STRAIN-CV. COLUMBIA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted (NOV-2001)
                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                Submitted
                                                                                                                                                                                                     EU
                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=3702;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Match
                                                                                                                                                                           Arabidopsis sequencing project; mitted (APR-2000) to the EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SPSSA-----VFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSA 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MAAALSGTAVSTAALLAPIRAPTSAFIRRSQLTCHRLHSLKCRRAGSIVPAAAAAAAGSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGEVYPLELTDYGAWKECKTGDVYTVDL--ANSVFINHTSGKEYKLKPIGDAGPVIEAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MAASLQSANPTLSRTLASPNKPSSFATFRSPFL--RFNSTSV--ASNFKPLVSREASSSF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GIFAYARKAGMIPSAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GIFAYARKTGMIASKAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IPR000573; Aconitase_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Aconitase_
                                                                                                                                                                                                                                                                           A., Modesto D., Pigazzi M., Mayer K.F.X., Quetier F., to the EMBL/GenBank/DDBJ (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            26790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   56.1%;
59.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .
▼ ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                , Fujii C.Y., Shen M., Vanaken S.E., Bowman C.L., Ronning C.M., Benito Buell C.R., Town C.D., Nierman W.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              62EBB1B6059ED272 CRC64;
                                                 Chang E., Dale J.M., Goldsmith A.D.,
.L., Tang C., Toriumi M., Wu H.C.,
er L., Carninci P., Chen H., Cheuk R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      710.5;
No. 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein (Small subunit)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Embryophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .3e-52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       databases
                                                                                                                                                                                databases
                                                                                                                                                                                                                                                                             , Valle G., Mewes Salanoubat M.; databases.
                               Karlin-Neumann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                        a; Tracheophyta;
eudicots; Rosidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (Putative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                M. -I.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6
```

```
RA RA CLEER 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RA DR RA SQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Ma
Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q9ZW84 PRELIMINARY; PRT; 256 AA.
Q9ZW84;
Q9ZW84;
Q1-MAY-1999 (TrEMBLrel. 10, Created)
Q1-MAY-1999 (TrEMBLrel. 110, Last sequence update)
Q1-JUN-2002 (TrEMBLrel. 21, Last annotation update)
Q1-JUN-2002 (TrEMBLrel. 21, Last annotation update)
Q1-Supropylmalate dehydratase, small subunit (Putative)
Q1-Supropylmalate dehydratase small subunit) (At2g43100/MFL8.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=20083487; PubMed=10617197;
Lin X., Kaul S., Rounsley S.D., Shea T.P., Benito M.-I., Town C.D., Fuir X., Kaul S., Rounsley S.D., Shea T.P., Barnstead M.E., Feldblyum T.V. Buell C.R., Mason T.M., Bowman C.L., Barnstead M.E., Feldblyum T.V. Buell C.R., Ketchum K.A., Lee J.J., Ronning C.M., Koo H., Moffat K. Cronin L.A., Shen M., Vanaken S.E., Umayam L., Tallon L.J., Gill J. Adams M.D., Carrera A.J., Creasy T.H., Goodman H.M., Somerville C.F. Copenhaver G.P., Preuss D., Nierman W.C., White O.; Eisen J.A., Salzberg S.L., Fraser C.M., Venter J.C.; "Sequence and analysis of chromosome 2 of the plant Arabidopsis thalians" "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Narusaka N
Shinn P.,
Yamada K., Banh J., Banno F., Chang E., Dale J.M., Goldsmith A.D., Lee J.M., Onodera C.S., Quach H.L., Tang C., Toriumi M., Wu H.C., Yamamura Y., Yu G., Yu S., Bowser L., Carninci P., Chen H., Cheuk R., Hayashizaki Y., Ishida J., Jones T., Kamiya A., Karlin-Neumann G., Kawai J., Kim C., Koesema E., Lam B., Lin J., Meyers M.C., Miranda M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Arabidopsis thaliana (Mouse-ear cress).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AT2G43100.
Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Spermatophyta; Magnoliophyta; eurosids II; Brassicales; Bras
                                                                                                                                                                                                                                                                                                            Nature 402:761-768(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Theologis A.;
"Full Length o
                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ---ANSVFINHTSGKEYKLKPIGDAGPVIEAGGIFAYARKTGMIAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SPFLQLKSASTIFNYKPLTSSSATITRVAASSSDSGESITRETFHGLCFVLKDNIDTDQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SAFIR-RSQLTCHRLHSLKCRRAGSIVPAAAAAAAGSSSPSSAVFHGECFVVGDNIDTDQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SREHAPVCLGAAGAKAVVAESYARIFFRNCVATGEIFPLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVGAWKECKTGDVVTVDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGEESSRYAIIVGGANFGCGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEDGSSLLINHTTRKEYKLKPLGDAGPVIDAGGIFAYARKAGMIPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IIPAEYGTLIPSIPEDREKLGSFALNGLPK-FYNERFVVPGEMKSKYSVIIGGDNFGCGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       135;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                E FROM N.A.
CV. COLUMBIA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .
X
                                                                                                                                   FROM N
                                                                                                                                                                                                                                                              FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      M., Nguyen
Southwick
                                                                                                                                                                                   (MAR-2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     253 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Aconitase_C; 1.
AA; 27208 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A M
                                                                                                                                                                                      ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               51.4%; Score 651; DI 59.7%; Pred. No. 2.66 tive 29; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Palm C.J.,
Shinozaki 1
                                                                                                                                                                                      the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Brassicaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     At3g58990
                                                                                                                                                                                   EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A99AB88C4656B0DA CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      , Sakurai T., Saco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (GI:15231608).";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 10;
.6e-47;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       56;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -SEVRICDECKTGDVVTIEH
                                                                                                                                                                                   databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Satou
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ecker
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   eudicots;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tracheophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ç.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Seki M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Rosidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                       .
Б.,
          3
```

```
RESULT
QRUZAO
ID ON
ID O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            日
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ър
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SO DE REAL PROPERTOR OF THE PROPERTOR OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Lin X., Kaul S., Shea T.P., Fujii C.Y., Shen M., Val Barnstead M.E., Mason T.M., Bowman C.L., Ronning C.I.
Carrera A.J., Creasy T.H., Buell C.R., Town C.D., N.
Fraser C.M., Venter J.C.;
Submitted (FEB-2002) to the EMBL/GenBank/DDBJ datable EMBL; AC004450; AAC64299.1;
EMBL; AC06452; AAL6429.1;
EMBL; AC06524; AAL31219.1;
EMBL; AV068928; AAL31219.1;
EMBL; AC006224; AAM15100.1;
InterPro; IPR000573; Aconitase_C.
Pfam; PF00694; Aconitase_C.
SEQUENCE 256 AA; 27043 MW; 56845DC3F4F90A65 CRC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Narusaka M., N
Shinn P., Sout
Theologis A.;
"Full Length c
                                                                                                                                                                                                                                                                                                 QBU2AO;
Q1-JUN-2002 (TrEMBLrel. 21,
Q1-JUN-2002 (TremBlrel
                                                                                                                                                Pyrococcus furiosus.
Archaea; Euryarchaeota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cheuk R., Chen H., Kim C.J., Koesema E., Meyers M.C., Banh J., Bowser L., Carninci P., Dale J.M., Goldsmith A.D., Hayashizaki Y., Ishida J., Jiang P.X., Jones T., Kamiya A., Karilin-Neumann G., Kawai J., Liam B., Lee J.M., Lin J., Liu S.X., Miranda M., Narusaka Nguyen M., Onodera C.S., Palm C.J., Pham P.K., Quach H.L., Sakurai Satou M., Seki M., Southwick A., Tang C.C., Toriumi M., Yamada K., Yamamra Y., Yu G., Yu S., Shinozaki K., Davis R.W., Theologis A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Full Length cDNA of
Submitted (NOV-2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q8U2A0
                                                                                                                                                                                                                                                                     PF0939.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN-CV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ecker
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "Arabidopsis cDNA clones.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4 ALSGTAVSTAALLAPIRAPTSAFIRRSQLTCHRLHSLKCRRAG----SIVPAAAAAAAGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    YPLELTDVGAWKECKTGDVVTVDLANS--VFINHTSGKEYKLKPIGDAGPVIEAGGIFAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ARKTGMIASKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ARMMGMIPSLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FPLE-SEVRVCEECKTGDTVTIELSDSGGLLINHTTGKNYKLKSIGDAGPVIDAGGIFAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NEALANTTFHGLCYVLKDNIDTDQIIPAGAACTFPSNQQERDEIAAHALSGLPD-FHKTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ALPCSSTKTSSSLATFRSP---FLRFNGSTSLIPSSISITSRGTSSPTIIPRAAASESDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             J.R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           136;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                M., Nguyen
Southwick
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (OCT-2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COLUMBIA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                49.5%;
54.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene At2g43100 (GI:15224222).";
to the EMBL/GenBank/DDBJ databa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Palm C.J.,
Shinozaki K
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              the
                                                                                                                                                                            Thermococci;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      38;
                                                                                                                                                                                                                                                                                                      Last sequence update)
Last annotation updat
dehydratase small subu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                         Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                627;
No. 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sakurai T.,
                                                                                                                                                                        Thermococcales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Davis R.W.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 10;
.8e-45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AA
                                                                                                                                                                                                                                                                                                          update)
l subunit.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      65;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Satou M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VanAken S.E.,
C.M., Benito
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Nierman W.C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ecker
                                                                                                                                                                        Thermococcaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ч
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Seki M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  M.-I.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       . .
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
```

```
Q97EEI 10 Q97E 20 Q97EEI 1D Q97EE 2D Q97EE 2D Q97E 2D 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SO DRIP RA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                          В
                                                                                                                                                                Qy
                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                           δÃ
Дb
                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Clostridium acetobutylicum.
Bacteria; Firmicutes; Bacillus/Clostridium group; Clostridia;
Clostridiales; Clostridiaceae; Clostridium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   097EE1 PRELIMINARY; PRT; 163 AA.
097EE1;
01-CCT-2001 (TrEMBLrel. 18, Created)
01-CCT-2001 (TrEMBLrel. 18, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
3-isopropylmalate dehydratase, small subunit.
CAC3172.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN-VC1 / DSM 3638 / ATCC 43587 / JCM 8422; Weiss R.B., Dunn D.M., Robb F.T., Brown J.R.; Weiss R.B., Dunn D.M., Robb F.T., Brown J.R.; Submitted (FEB-2002) to the Pyrococcus furiosus genome."; Submitted (FEB-2002) to the EMBL/GenBank/DDBJ databases. EMBL; AE010207; AALBL063.1; -. EMBL; AE010207; AALBL063.1; -. Complete proteome; Hypothetical protein.

Complete proteome; Hypothetical protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=21359325; PubMed=11466286;
Noelling J., Breton G., Omelchenko M.V., Makarova K.S., Zeng Q.,
Gibson R., Lee H.M., Dubois J., Qiu D., Hitti J., Wolf Y.I.,
Tatusov R.L., Sabathe F., Doucette-Stamm L., Soucaille P., Daly M.J.,
Bennett G.N., Koonin E.V., Smith D.R.;
"Genome sequence and comparative analysis of the solvent-producing bacterium Clostridium acetobutylicum.";
J. Bacteriol. 183:4823-4838(2001).
EMBL; AE007812; AAK81109.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A. STRAIN=ATCC 824 /
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Complete proteome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pfam; PF00694; Aconitase_C; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=1488;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR000573; Aconitase_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                128
100
                                                         177
                                                                                                                                                                      117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            54
                                                                                                             52
                                                                                                                                                                                                                                                                                       89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          σ
                                                                                                                                                                                                                                4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GRAWKYGDNIDTDVIIPARYLN--TSDPKE---LAQHVLEDLDPEFRYK---MKPGD---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGL-PSAAYPTPFVAPGEESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ---IIVAGENFGCGSSREHAPLAIKAAGVSAVIAKSFARIFYRNAINIG--LPI-LEAPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AWKECKTGDVVTVDLANSVFINHTSGKEYKLKFIGD-AGPVIEAGGIFAYARK 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RYALIVGGANEGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVG 187
                                                                                                                                                                                                                                                                                 HGECFVVGDNIDTDQIIPAEHL-TLVPSK------PDEYRKLGSFAFAGLPSAAYP 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AVERIETGDEIEIDFSTGEIRNLTKGEVYHANPFPEFIMEIIKÄGGLVEWÄKR 160
                                                      EVYPLELTDVGAWKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGD 223
                                                                                                                                        TPFVAPGEESSRYAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATG 176
                                                                                                                                                                                                                             NGDVLKYGDNIDTDVIIPARYLNTSVPEELAKHCMEDLDVDFLKKLKT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       . Similarity 68; Conserv
FPI-LECEEAVNDASTGDKLEVDFIEGIIKNVTLNKEYKAQPFPD 143
                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                              163 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       / DSM 792 / VKM B-1787;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              18025 MW;
                                                                                                                   IVVGGRNFGCGSSREHAPICIKAAGVSCVIAKSFARIFYRNSINIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21.0%;
                                                                                                                                                                                                                                                                                                                                                 20.5%; Score 260; DF 38.3%; Pred. No. 1.96 tive 22; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 265.5; DB 1
Pred. No. 6.7e-15;
7; Mismatches 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14AD16171A32A4E2
                                                                                                                                                                                                                                                                                                                                                                         ); DB 16;
1.9e-14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 17; Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             59;
                                                                                                                                                                                                                                                                                                                                                    43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                       Length 163;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       164;
                                                                                                                                                                                                                                                                                                                                                    38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   107
                                                                                                                      99
                                                                                                                                                                                                                                      51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                    6
```

RESULT

Matches

Conservative

26;

68;

Indels

17;

Gaps

Ġ

```
QQUZOCA ACTION OCCUPANTA ACTION OCCUPANT
                                                                                                                                                                                        QRTSULT QRTSUL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.

SEQUENCE FROM N.A.

STRAIN-AV19 / DSM 6324 / JCM 9639;

STRAIN-AV19 / DSM 6324 / JCM 9639;

MEDLINE-21927647; PubMed=11930014;

Slesarev A.I., Mezhevaya K.V., Makarova K.S., Polushin N.N.,

Shcherbinina O.V., Shakhova V.V., Belova G.I., Aravind L.,

Natale D.A., Rogozin I.B., Tatusov R.L., Wolf Y.I., Stetter K.O.,

Malykh A.G., Koonin E.V., Kozyavkin S.A.;

"The complete genome of hyperthermophile Methanopyrus kandleri AV19

and monophyly of archaeal methanogens.";

natl Acad. Sci. U.S.A. 99:4644-4649(2002).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q9UZO6;
01-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
01-MAR-2002 (TrEMBLrel. 20, Last annotation update)
3-isopropylmalate dehydratase, small subunit (LEUD-1).
LEUD-1 OR PAB0892.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q8TX94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR000573; Aconitase_C.
Pfam; PF00694; Aconitase_C; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              structure and evolution.";
submitted (JUL-1999) to the EMBL/GenBank/DDBJ
EMBL; AJ248287; CAB50256.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pyrococcus abyssi.
Archaea; Euryarchaeota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q9UZ06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-JUN-2002 (TrEMBLrel. 21, Created)
01-JUN-2002 (TrEMBLrel. 21, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
3-isopropylmalate dehydratase small subunit.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Complete proteome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAIN-ORSAY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Methanopyrus kandleri.
Archaea; Euryarchaeota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Pyrococcus abyssi genome sequence: insights into archaeal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Heilig R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q8TX94;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=29292;
                                                                                                                                                                                             SEQUENCE 170 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=2320;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LEUD_1 OR MK0781.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         69 GECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGEESSR 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5 GRAWKYGDNIDTDVIIPARYLN--TSDPKE---LAKHVLEDLDPEFRSK--MKPGD---- 53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | THE CONTROL OF THE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGD-AGPVIEAGGIFAYARK 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 YAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVGA 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 --IIVAGENFGCGSSREHAPLAIKAAGVSCVIAKSFARIFYRNAINIG--LPI-LEAPQA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             67;
. Similarity
66; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                164 AA; 18217 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                   AΑ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20.4%; Score 258.5; DB 17; 39.0%; Pred. No. 2.6e-14;
                                                                                                                                                                                                        18686 MW;
                                               20.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Thermococci; Thermococcales; Thermococcaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Methanopyri; Methanopyrales; Methanopyraceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        26;
Score 254.5;
Pred. No. 6e-1
26; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EEOAlAE526C02D5D CRC64;
                                                                                                                                                                                                        E329CD3D366367F6 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      170
                                                          6e-14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A
                                                                                                    DB 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            164;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7;
               7;
```

```
RESULT 10
Q8TU7
ID Q8TU7
AC Q8TU7
D7 01-JU
D7 01-JU
D7 01-JU
D7 01-JU
D7 01-JU
D7 Also
GN LEUD;
OS Metha
OC Metha
OC Metha
OX NCBI_
RN (1)
RP SEQUE
RC STRAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                      Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       γ
                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                멍
                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                    Q8TU71
Q8TU71;
01-JUN-2002 (
01-JUN-2002 (
01-JUN-2002 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q8RDK1;
Q8RDK1;
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bao Q., Tian Y., Li W., Xu Z., Xuan Z., Hu S., Don Chen Y., Xue Y., Xu Y., Lai X., Huang L., Dong X., Tan H., Chen R., Wang J., Yu J., Yang H.;
"A complete sequence of T. tengcongensis genome.";
Genome Res. 12:689-700(2002).
EMBL; AE012976; AAM23335.1; -.
                                                   Methanosarcina acetivorans.
Archaea; Euryarchaeota; Methanococci;
Methanosarcinaceae; Methanosarcina.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-JUN-2002 (TrEMBLrel. 21, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
3-isopropylmalate dehydratase small subunit.
                                                                                           3-isopropylmalate dehydratase. LEUD OR MA0202.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
STRAIN-MB4T / JCM11007;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bacteria; Firmicutes; Bacillus/Clostridium group; Clostridia; Thermoanaerobacteriales; Thermoanaerobacteriaceae; Thermoanaerobacter.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Thermoanaerobacter tengcongensis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LEUD OR TTE0018
 STRAIN=C2A /
            SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Complete proteome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=21992816; PubMed=11997336;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=119072;
                                      NCBI_TaxID=2214;
                                                                                                                                                                                                                                                                                                                        129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       126
                                                                                                                                                                                                                                           107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ø
                                                                                                                                                                                                                                                                    189
                                                                                                                                                                                                                                                                                              52
                                                                                                                                                                                                                                                                                                                                                                            69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99
                                                                                                                                                                                                                                                                                                                                                  w
                                                                                                                                                                                                                                                                                                                    YAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVGA 188
                                                                                                                                                                                                                                                                                                                                                                         GECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGEESSR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VGAWKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGD-AGPVIEAGGIFAYARKTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VIRGRAWVFGDDIDTDQIIPGRYLT--TQDPEE---LAKHVMEG-ADPEFP-----EK
                                                                                                                                                                                                                                                                WKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGD-AGPVIEAGGIFAYARK 239
                                                                                                                                                                                                                                                                                                                                                  GKAIKYGDNIDTDVIIPARFLN--TSDPKE----LAEHCMEDL----DREFKNKVKEGD-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VREGDVIVAGKNEGCGSSREHAPIALKAAGIACVVTRSFARIFYRNAINLG--LPLVVCP 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SSRYAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTD 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VFHGECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGEE
                                                                                                                                                                                                                                           VDGIEEGDIVSVDVDNGIIRNVTKGTEFKAQPFPEFIKEIIKYGGLINYVRE 158
                                                                                                                                                                                                                                                                                           --ILVVGENFGCGSSREHAPLAIKASGISCIIAKSFARIFYRNAINIG--LPI-LESREA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -GVDDAFEDGQGIEVNLREGYVRNLDTGEELEAKPLPDFMMRILEAGGLVELIKREG
                                                                                                                                                                                                                                                                                                                                                                                                     67;
                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (TrEMBLrel.) (TrEMBLrel.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                           161 AA;
                                                                                                                    (TrEMBLrel. 21, (TrEMBLrel. 21, (TrEMBLrel. 21,
                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
 ATCC
  35395
                                                                                                                                                                                                                                                                                                                                                                                                                                                           17888 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                 19.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21,
21,
21,
 \
  DSM 2834;
                                                                                                                                                                                                                                                                                                                                                                                                     25;
                                                                                                                    Last sequence update;
Last annotation updat
                                                                                                                                             Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Created)
                                                                                                                                                                                                                                                                                                                                                                                                 Pred. No. 8.26
5; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                 Score 252.5;
Pred. No. 8.
                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         4C4A2BCF8CC2B68F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           161
                                                                                                                                                                          162
                                                                Methanosarcinales;
                                                                                                                                                                         A
                                                                                                                                                                                                                                                                                                                                                                                                                  . 2e-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ĀĀ
                                                                                                                                                                                                                                                                                                                                                                                                                              DB 16; Length 161;
                                                                                                                    update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Dong
                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ma ₩
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Yang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ang J.
Ling
                                                                                                                                                                                                                                                                                                                                                                                                    17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ŀ.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                          128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           125
                                                                                                                                                                                                                                                                                              106
                                                                                                                                                                                                                                                                                                                                                51
                                                                                                                                                                                                                                                                                                                                                                                                    7:
```

```
RESULT
Q8ZW36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Дb
Qy
                                 밁
                                                              ΩV
                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RX MEDLINE=21929760; PubMed=11932238;
RG Galagan J.E., Nusbaum C., Roy A., Endrizzi M.G., Macdonald P.,
RG Galagan J.E., Nusbaum C., Roy A., Endrizzi M.G., Macdonald P.,
RA FitzHugh W., Calvo S., Engels R., Smirnov S., Atnoor D., Brown A.,
RA Allen N., Naylor J., Stange-Thomann N., DeArellano K., Johnson R.,
RA Linton L., McEwan P., McKernan K., Talamas J., Tirrell A., Ye W.,
RA Zimmer A., Barber R.D., Cann I., Graham D.E., Grahame D.A., Guss A.M.,
Redderich R., Ingram-Smith C., Kuettner H.C., Krzycki J.A.,
RA Leigh J.A., Li W., Liu J., Mukhopadhyay B., Reeve J.N., Smith K.,
Springer T.A., Umayam L.A., White O., White R.H., de Macario E.C.,
RA Ferry J.G., Jarrell K.F., Jing H., Macario A.J.L., Paulsen I.,
RA Pritchett M., Sowers K.R., Swanson R.V., Zinder S.H., Lander E.,
RA Metcalf W.W., Birren B.;
"The genome of Methanosarcina acetivorans reveals extensive metabolic
and physiological diversity.";
Cenome Res. 12:532-542(2002).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
Matches 62
                                                                                                               Query Match
Best Local
                                                                                                 Matches
                                                                                                                                                                                           Pfam;
                                                                                                                                                                                                                             aerophilum.";
Proc. Natl. Acad. Sci. U.S.A. 99:984-989(2002)
EMBL; AE009851; AAL63866.1; -
                                                                                                                                                                                                                                                                                                                              (1)
SEQUENCE FROM N.A.
STORBATN=IM2 / ATCC 51768 / DSM 7523;
                                                                                                                                                                                                                                                                                                                                                                                              Thermoproteaceae; NCBI_TaxID=13773;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            UI-MAR-2002 (TrEMBLrel. 20, Last sequence update)
01-UUN-2002 (TrEMBLrel. 21, Last annotation update)
3-isopropylmalate dehydratase small subunit (leuD).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-MAR-2002 (TrEMBLrel. 20, Creat 01-MAR-2002 (TrEMBLrel. 20, Last 01-JUN-2002 (TrEMBLrel. 21, Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q8ZW36;
01-MAR-2002 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q8ZW36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Complete proteome. SEQUENCE 162 AA;
                                                                                                                                                                   SEQUENCE
                                                                                                                                                                               Complete proteome
                                                                                                                                                                                             InterPro; IPR000573; Aconitase_C. Pfam; PF00694; Aconitase_C; 1.
                                                                                                                                                                                                                                                                                                               Fitz-Gibbon S.T., Ladner H., Kim U.-J., Stetter K.O., Simon M.I.,
                                                                                                                                                                                                                                                                                                                                                                                                                           Pyrobaculum aerophilum.
Archaea; Crenarchaeota; Thermoprotei; Thermoproteales
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PAE1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; AE010678; AAM03655.1;
                                                                                                                                                                                                                                                                               "Genome sequence of the hyperthermophilic crenarchaeon
 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11
                                                                 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
nes 62; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RYAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVG 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GRAWKFGDDVDTDAVIPGRY--LIFNTPGE---LAKYTEEGVRPDFA-----KKVH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGL-PSAAYPTPFVAPGEESS 127
 YAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVGA 188
                                 GRALVYGDKIDTDVIIPAKYLVYT-----DPALLGQHAMEPL-DPEFP------KKAK 50
                                                               GECTVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGEESSR 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   --DRIDDGDELEVDLSTGDIQNITKGETYQATPLPDFVREIVDEGGLIEYARK 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AWKECKTGDVVTVDLANSVFINHTSGKEYKLKPIGD-AGPVIEAGGIFAYARK 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ENDIVVAGSNFGCGSSREHAPLALKGSKVSCVIAKSFARIFFRNAINIG-VPVLECPNT-
                                                                                               1 Similarity
63; Conser
                                                                                                                                                                 161 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      162 AA;
                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                Pyrobaculum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17825 MW;
                                                                                                                                                                   17175 MW;
                                                                                                             18.2%;
36.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31;
                                                                                               29;
                                                                                               Score 231; DE
Pred. No. 5.5e
29; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 252; DB 17;
Pred. No. 9.1e-14;
1; Mismatches 60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                 440B9AA6AF3F45A2 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2D609D9BA176A228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   161
                                                                                               DB 17;
5.5e-12;
hes 63;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AΑ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 162;
                                                                                                                               Length 161;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                 Indels
                                                                                                                                                                                                                                                                                Pyrobaculum
                                                                                                 18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20;
                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    106
                                                                                                 6,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7;
```

```
REPARATION OF THE PROPERTY OF 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ωy
RESULT 13
Q8TRF
ID Q8TRF
AC Q8TRF
AC Q8TRF
O1-JU
DT 01-JU
DT 01-JU
DT 01-JU
DF 3-isc
GN LEUC
OS Metha
OC Archa
OC Metha
OC Metha
OC Metha
OC Metha
OC Metha
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              рb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
3-isopropylmalate dehydratase, small subunit.
                                                                                                                                                                               Q8TRF7;
Q8TRF7;
Q1-JUN-2002
Q1-JUN-2002
Q1-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Complete SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 White O., Eisen J.A., Heidelberg J.F., Hickey E.K., Peterson J.D., Dodson R.J., Haft D.H., Gwinn M.L., Nelson W.C., Richardson D.L., Moffat K.S., Qin H., Jiang L., Pamphile W., Crosby M., Shen M., Vamathevan J.J., Lam P., McDonald L., Utterback T., Zalewski C., Makarova K.S., Aravind L., Daly M.J., Minton K.W., Fleischmann R.D. Ketchum K.A., Nelson K.E., Salzberg S., Smith H.O., Venter J.C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Deinococcus radiodurans.
Bacteria; Thermus/Deinococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q9RTIO;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q9RTI0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  radiodurans R1.";
Science 286:1571-1577(1999).
EMBL; AE002019; AAF11332.1;
TIGR; DR1784; ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Deinococcaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR000573; Aconitase_C
Pfam; PF00694; Aconitase_C; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=1299;
                                                    Methanosarcina acetivorans.
Archaea; Euryarchaeota; Methanococ
Methanosarcinaceae; Methanosarcina
                                                                                                                                   3-isopropylmalate dehydratase.
LEUC OR MA1223.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Genome sequence of the radioresistant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Fraser C.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=20036896; PubMed=10567266;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                        Methanosarcinaceae;
NCBI_TaxID=2214;
                                                                                                                                                                                                                                                                                                                                                                                                                              111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WKECKTGDVVTVDLANSVFINHTSGKEYKLKPI-GDAGPVIEAGGIFAYARKT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REKYKDGDEVELDVEGGIVRNITTGEVIVGKPLRGLPLEILKAGGLLNYLKNS 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VGGANFCCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVGAWKEC
                                                                                                                                                                                                                                                                                                                                                                                                                           QDGEEAELDLKGGTIRNPRTGKELSFVPVPQFALDVQKAGGWLEYMK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KTGDVVTVDLANSVFINHTSGKEYKLKPIGD-AGPVIEAGGIFAYAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VAGADEGCGSSREHAVWALRGAGVSAVIAPNEARIYYRNSINNGE---LALECEGITELE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DHINTDEIIPARHLT-----TDVESELAKYAMED-----YDKDFVRRVQPGD-----II
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPF---VAPGEESSRYAII 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     proteome.
                                                                                                                                                                                  2 (TrEMBLrel. 21,
2 (TrEMBLrel. 21,
2 (TrEMBLrel. 21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Deinococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    22652 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18.1%;
                                                                                  Methanococci;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21;
                                                                                                                                                                                          Last annotation
                                                                                                                                                                                                                                         Created)
                                                                                                                                                                                                                   Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 229.5;
Pred. No. 1e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       F26C4BB27FBED1E7 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Deinococci; Deinococcales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          208
                                                                                                                                                                                                                                                                                                164
                                                                                     Methanosarcinales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1e-11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             bacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                ĄΑ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 16; Length
                                                                                                                                                                                       update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  59;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Deinococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6
```

ij

Matches

. Similarity 64; Conser

26;

Mismatches

Indels

37;

7;

Pred. No.

.1e-11;

```
QONNTO ON THE STATE OF THE STAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAINCEAN ATCC 35395 / DSM 2834;

RX MEDLINE-21929760; PubMed-1193238;

RX MEDLINE-21929760; PubMed-1193238;

RX AGAIGNA J.E., Nusbaum C., Roy A., Endrizzi M.G., Macdonald P.,

Ra FitzHugh W., Calvo S., Engels R., Smirnov S., Atnoor D., Brown A.,

RA Linton L., Maylor J., Stange-Thomann N., DeArellano K., Johnson R.,

RA Linton L., McEwan P., McKernan K., Talamas J., Tirrell A., Ye W.,

RA Linton L., McEwan P., McKernan K., Talamas J., Tirrell A., Ye W.,

RA Linton L., McEwan P., McKernan K., Talamas J., Tirrell A., Ye W.,

RA Linton L., McEwan P., McKernan K., Graham D.E., Grahame D.A., Guss A.M.,

RA Hedderich R., Ingram-Smith C., Kuettner H.C., Krzycki J.A.,

RA Hedderich R., Liu J., Mukhopadhyay B., Reeve J.N., Smith K.,

RA Springer T.A., Umayam L.A., White O., White R.H., de Macario E.C.,

RA Ferry J.G., Jarrell K.F., Jing H., Macario A.J.L., Paulsen I.,

RA Ferry J.G., Jarrell K.F., Jing H., Macario A.J.L., Paulsen I.,

RA Pritchett M., Sowers K.R., Swanson R.V., Zinder S.H., Lander E.,

RA Metcalf W.W., Birren B.;

"The genome of Methanosarcina acetivorans reveals extensive metabolic

RT "The genome of Methanosarcina acetivorans reveals extensive metabolic

RT "The genome Res. 12:532-542(2002).

REL Genome Res. 12:532-542(2002).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local
Query Match
Best Local
                                                                                                                                                                                                                                                                      STRAIN-MSB8 / DSM 3109;

STRAIN-MSB8 / DSM 3109;

MEDLIND-99287316; PubMed-10360571;

Nelson K.E., Clayton R.A., Gill S.R., Gwinn M.L., Dodson R.J.,

Nelson K.E., Clayton R.A., Gill S.R., Gwinn M.L., Dodson R.J.,

Haft D.H., Hickey E.K., Peterson J.D., Nelson W.C., Ketchum K.A.,

McDonald L., Utterback T.R., Malek J.A., Linher K.D., Garrett M.M.,

McDonald L., Utterback T.R., Malek J.A., Linher K.D., Garrett M.M.,

Stewart A.M., Cotton M.D., Pratt M.S., Phillips C.A., Richardson D.,

Heidelberg J., Sutton G.G., Fleischmann R.D., Eisen J.A., White O.,

Salzberg S.L., Smith H.O., Venter J.C., Fraser C.M.;

"Evidence for lateral gene transfer between Archaea and Bacteria frogenome sequence of Thermotoga maritima.";

Nature 399:323-329(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
STRAIN-C2A / ATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-NOV-1999
01-DEC-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q9WYC8;
01-NOV-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q9WYC8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TM0292
                                                                                                                                                                                                                      EMBL; AE001711
TIGR; TM0292;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=2336;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Thermotoga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3-isopropylmalate
                                                                                                                                                         Pfam; PF00694; Aconitase_C;
                                                                                                                                                                                      InterPro; IPR000573;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WKECKTGDVVTVDLANSVFINHTSG--KEYKLKPIGDAGPVIEAGGIFAYARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GRVWKFGDDINTDAIIPGKYL-----RTRDMQIFGTHAMEGIDPEF--TKKAKPGD----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGEESSR 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               --ECQEGDEIKVDLFKGEVLVPEKGIFKGNKLPDF--LLDILNDGGLVAHRKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      --IIVAGTNEGCGSSREQAPLALKHSGIACIVAKSFARIFFRNAINIG--LPLMEADV--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            YAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVGA 188
                                                                                                                                                                                                                                               AE001711; AAD35380.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               proteome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Thermotogae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         164 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               maritima
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Tremblrel 12, (Tremblrel 12, 12) (Tremblrel 12, 19,
                                                                                               166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                               ΑĄ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            dehydratase,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            17963 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18.0%;
37.0%;
                                                                                                   18734 MW;
      18.0%;
                                                                                                                                                                                         Aconitase_C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Thermotogales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 227.5; DB 1
Pred. No. 1.1e-11;
                                         Score 227.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            st annotation update) small subunit, putative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7D46606C68589AC0 CRC64;
                                                                                                      D8ACF340205111A4 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Thermotogaceae; Thermotoga.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 17; Length 164;
                                         DB 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                         Length 166;
                                                                                                                                                                                                                                                                                                                                                      Bacteria from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7;
```

```
QRIJUT 15
QRIJUT 00
QRIJUT 00
QRIJUT 00
DT 01-JU
                                                           Š
                                                                                                                                     밁
                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                           Вþ
                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                     ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.

22 STRAIN-C2A / ATCC 35395 / DSM 2834;

23 MEDLINE-21929760; PubMed-11932238;

24 MEDLINE-21929760; PubMed-11932238;

25 Galagan J.E., Nusbaum C., Roy A., Endrizzi M.G., Macdonald P.,

26 FitzHugh W., Calvo S., Engels R., Smirnov S., Atnoor D., Brown A.,

27 A FitzHugh W., Calvo S., Engels R., Smirnov S., Atnoor D., Brown A.,

28 Allen N., Naylor J., Stange-Thomann N., DeArellano K., Johnson R.,

29 Allen N., McEwan P., McKernan K., Talamas J., Tirrell A., Ye W.,

20 Allen N., McEwan P., McKernan K., Talamas J., Tirrell A., Ye W.,

20 Allen N., McEwan P., McKernan K., Talamas J., Tirrell A., Ye W.,

21 Allen N., McEwan P., McKernan K., Talamas J., Tirrell A., Guss A.M.,

21 Allen N., McEwan P., McKernan K., Talamas J., Tirrell A., Guss A.M.,

22 Allen N., McEwan P., McKernan K., Talamas J., Tirrell A., Ye W.,

23 Allen N., Janyam L.A., White O., White R.H., de Macario E.C.,

24 Allen N., Jarrell K.F., Jing H., Macario A.J.L., Paulsen I.,

25 Allen N., Birren B.;

26 The genome of Methanosarcina acetivorans reveals extensive metabolic

27 And howersological diversity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
Matches 62; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OBTJM9 PRELIMINARY; PRT; 166 AA.

QBTJM9; O1-JUN-2002 (TrEMBLrel. 21, Created)
O1-JUN-2002 (TrEMBLrel. 21, Last sequence update)
O1-JUN-2002 (TrEMBLrel. 21, Last annotation update)
3-isopropylmalate dehydratase.
LEUD OR MA3751.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and physiological diversity.";
Genome Res. 12:532-542(2002).
EMBL; AE011086; AAM07104.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Complete proteome. SEQUENCE 166 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Methanosarcinaceae; Methanosarcina.
NCBI_TaxID=2214;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Archaea; Euryarchaeota; Methanococci; Methanosarcinales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Methanosarcina acetivorans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             180 PLELTDYGAWKECKTGDYVTYDLANSVFINHTSGKEYKLKPIGDAGP-----VIEAGGIF 234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    102 VIELKEV---DEINQGDELEIDLENGVLKNLTTGKEYRFTPI----PKFLLEILKEDGIV 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             235 AYARKTG 241
156 HRKK 159
                                                                  236 YARK 239
                                                                                                                                         111
                                                                                                                                                                                                            189
                                                                                                                                                                                                                                                                                                                                                  129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             47
                                                                                                                                                                                                                                                                                   57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        _
                                                                                                                                                                                                                                                                                                                                                                                                                     ω
                                                                                                                                         --ECQEGDEIEVDLLKGEVRVPGKGVF----
                                                                                                                                                                                                        WKECKTGDVVTVDL-----ANSVFINHTSGKEYKLKPIGDAGP-----VIEAGGIFA 235
                                                                                                                                                                                                                                                                                                                 YAIIVGGANEGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVYPLELTDVGA 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GECFVVGDNIDTDQIIPAEHLTLVPSKPDEYRKLGSFAFAGLPSAAYPTPFVAPGEESSR 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NYLKKHG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ----KKVQKGDIIVAGKNFGLGSSREHAARIIKIAGVSCIVAKSFARIFYRNAINVG-LP 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VAPGEESSRYAIIVGGANFGCGSSREHAPVALGAAGARAIVAEGYARIFFRNSVATGEVY 179
                                                                                                                                                                                                                                                                               --IIVAGENFGCGSSREQAPLAIKHAGIACVVAKSFARIFFRNAINVG--LPLMEADI-- 110
                                                                                                                                                                                                                                                                                                                                                                                                                     GRVWKFGDDIDTDVIIPGKYL----RTKDMQIFAAHAMEGI--APEFTKKAKPGD---- 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MIRGRVWKFGDNISTDHIAPGRYFHL-RNNLEELAKHVLEDAMEDFA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18151 MW; 4BC4ED4738FDE014 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17.8%; Score 225.5; DB 17; Length 166: 33.7%; Pred. No. 1.7e-11; tive 28; Mismatches 49; Indels 45;
                                                                                                                                         -----VGNKLPDFLLDILTDGGLVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           49; Indels 45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                         155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
```

Search completed: March 31, 2003, 09:08:53 Job time: 37 secs

:			
	,		